

JANUARY 1920 ~ No 168

Monthly *635*

A Reference for Buyers

HITCHCOCK'S  
**MACHINE  
TOOL LIST**

Distributed Free to Machine Tool  
Users Everywhere in the United States and to  
Dealers in American Machinery Abroad

Published by  
**A. H. HITCHCOCK**  
1220-1235 Caxton Building  
Chicago

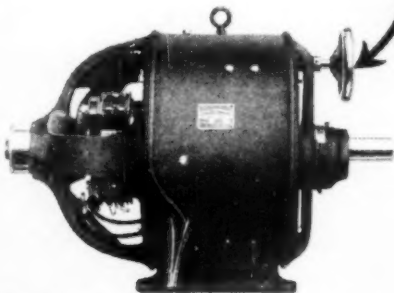
TO CHANGE  
THE SPEED TURN  
THE HAND WHEEL



For your machine tools you need an easy way of changing cutting speeds to suit all sizes and kinds of material. The simplest and surest way of getting just the speeds you want is by applying Type AS Reliance Motors. They run at any speed with a constant horsepower output over any range up to 1 to 10. *For details get Bulletin 1014.*

**Reliance Electric & Engineering Co.**  
1050 Ivanhoe Road, Cleveland, Ohio

BRANCHES: Boston, New York, Philadelphia, Pittsburgh, Chicago

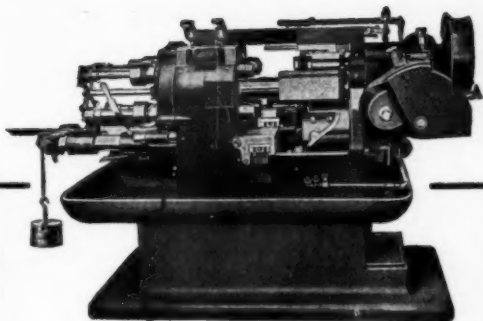


Type **AS** Adjustable Speed  
**RELIANCE MOTORS**









# GRIDLEY MULTIPLE SPINDLE AUTOMATICS

CAPACITIES UP TO 2¼"

*Complete data on request*

**THE NATIONAL ACME CO.**  
WINDSOR, VERMONT

General Offices, Cleveland, O. Canadian Screw Plant, Montreal, P. Q.

*Branch Offices:*

NEW YORK BOSTON CHICAGO DETROIT  
WAREHOUSES—NEW YORK, CHICAGO With FOREIGN REPRESENTATIVES

*Makers of Gridley Single and Multiple-Spindle Automatics at Windsor, Vt., and Acme Automatics, Threading Dies and Screw Machine Products at Cleveland, Ohio*

# An Announcement

## The "NIVIN Metal Parts Washing Machine" Becomes the "Crescent"

**C**OMMENCING with December 1st, the Nivin Metal Parts Washing Machine, which has been saving time and labor, and helping to increase production in hundreds of the country's leading plants in the metal industry, will be known as the

## *Crescent* Metal Parts Washing Machine

The Crescent Washing Machine Company, manufacturers of the well-known Crescent Washing Machines, is the *original* and parent company under which the Nivin Manufacturing Company, makers of the Nivin Metal Parts Washing Machine has operated.

The change of name is made solely for the purpose of identifying our product more closely with the company, which makes (and always has made) this widely known metal parts washing-machine.

**There will be absolutely no change in the machine, factory, personnel or policy**

The new name will in no way affect the machine, the factory, the manufacturing personnel, or the policy of the company. The parent organization remains intact—and the manufacture of the machine will continue under the same roof as before—everything identically the same except the name of the machine and the company.

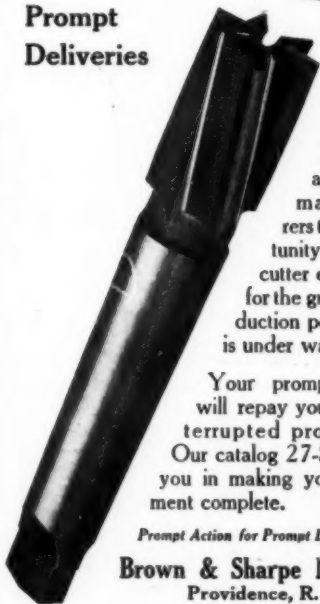
**Crescent Washing Machine Company**

(The original NIVIN Mfg. Co.)

843 Larrabee Street, Chicago



## **Prompt Deliveries**



Now we  
are offering  
manufacturers the opportunity to buy  
cutter equipment  
for the greater production period that  
is under way.

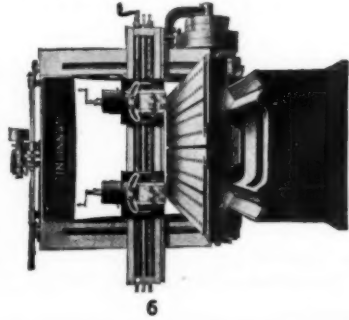
Your prompt action  
will repay you in uninterrupted production.  
Our catalog 27-S will aid  
you in making your equipment complete.

*Prompt Action for Prompt Deliveries*

**Brown & Sharpe Mfg. Co.**  
Providence, R. I.

# Time-Saving Planers and Boring Mills

## By Saving Time They Increase Output and Lower Costs

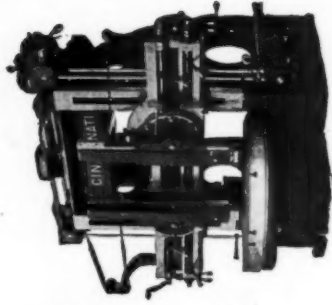


### Cincinnati Tu-Speeds

Compared with the Cincinnati Tu-Speed, the average planer is costly, because it kills time. The Tu-Speed *saves time*—therefore increases output and lowers costs—by providing two cutting speeds, instantly available, for work of a different character, such as roughing and finishing. All our belt-driven planers from 22" to 56" have the time-saving Patent Tu-Speed Drive.

### Cincinnati Boring Mills

Are time-saving efficiency tools for efficient boring. Made in sizes 8, 10 and 12 ft. in the spur gear type. Boring and turning mills of the bevel gear type are furnished 5, 6 and 7 ft.

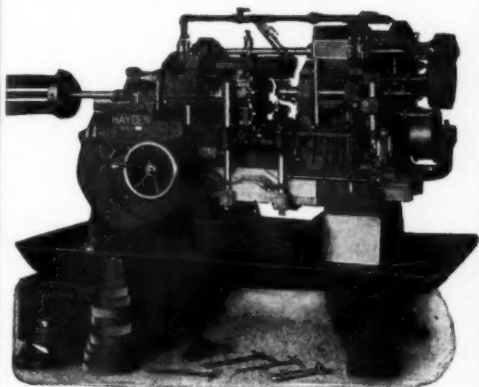


*Just give us a chance  
to save YOUR time*

THE CINCINNATI PLANNER CO., - CINCINNATI, OHIO, U.S.A.

# A 5-Spindle

**Money Maker and Money Saver**



## **The Cincinnati Automatic Screw Machine**

**It makes money because it increases production.**

**It saves money because it reduces costs.**

The proof lies in the time required per piece, which ranges from  $2\frac{1}{2}$  to 36 seconds, according to the character of the work.

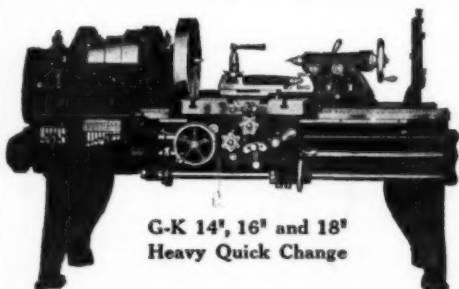
Its 48 Superior Features, fully explained in the Catalog, place it in the front rank as a large producer of accurate work of a wide range.

*Write for the Catalog, and send us sketch or samples of your work for production estimate*

**Cincinnati Automatic Machine Co.**

**Oakley, Cincinnati, Ohio**

Every shop owner or superintendent  
should have a copy of "G-K Betterments"



G-K 14", 16" and 18"  
Heavy Quick Change

**"G-K Betterments"** is the name of a book. It describes the betterments in the construction of G-K Engine Lathes, from 14" to 30" swing. And they are some betterments, too.

**Every lathe user** should have a copy, for it posts him entertainingly on mechanical improvements which he wants to know about, and which he cannot know in any other way unless he is one of the fortunate users of G-K Lathes.

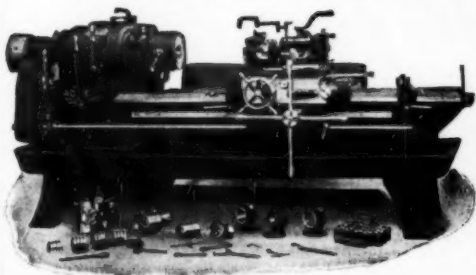
*We have a copy for you; what's your address?  
And what do you need in lathes from 16" to 30"?*

**The Greaves-Klusman Tool Co.**  
Cincinnati, Ohio, U. S. A.

**CINCINNATI-ACME** 3 1/4"x36" Bar Cap.  
36" Chucking Cap.

## Flat Turret Lathe

For Both Bar and Chucking Work



### With Equipment for Bar Work

With the cost of skilled labor mounting higher and higher, the only relief is from the use of tools which reduce production time to the minimum.

In the production of detail parts in quantities, the Cincinnati-Acme, which is the most rigid turret lathe made, has made many remarkable records. It is a tool of great productive capacity and remarkable accuracy.

If in doubt, submit your proposition to us. If we can't help you we will frankly say so, and it may be that you, like many others have done, will find that the Cincinnati-Acme is just what you have been looking for. And why delay?

**The Acme Machine Tool Co.**  
Cincinnati, Ohio, U. S. A.



Take the  
Drill Press  
to the  
Work

Van Dorn



Write Dept. HMTL today  
The Van Dorn Electric Tool Co.  
Cleveland, Ohio, U. S. A.  
Offices in all the principal cities





# New Machine Tools and Metalworking Machinery

## For Immediate Shipment

The following Machine Tools and Metal Working Machines are in stock for immediate shipment, subject to prior sale.

Write or wire at our expense for complete information and specifications.

### OUR PRICES WILL INTEREST YOU

#### PUNCHES

##### Ryerson Kling Horiz. Punches

Throat	Capacity	Stock No.
7"	1"x 1/4"	H-1067
12"	1"x 1"	H-856

##### Ryerson Kling Vertical Punches

Throat	Capacity	Stock No.
15"	1"x 1"	H-1075
24"	1"x 1"	H-1062
36"	1"x 1"	H-887
48"	1"x 1"	H-1068
18"	1"x 1"	H-1069
24"	1"x 1"	H-1070
36"	1"x 1"	H-855
48"	1"x 1"	H-908
72"	1"x 1"	H-979
48"	2"x 1"	H-934

##### Ryerson Kling Fly Wheel Punch

Throat	Capacity	Stock No.
18"	1"x 1/4"	H-983

##### Whiting Vertical Punches

Throat	Capacity	Stock No.
36"	1"x 1"	H-852
48"	1"x 1"	H-853

#### SHEARS

##### Lennox Rotary Bevel Shears

	Capacity	Stock No.
No. 2	1/4"	H-2
No. 3	1"	H-3

##### Lennox Rotary Splitting Shears

	Capacity	Stock No.
8"	1/4"	H-15
8"	1"	H-901

##### Lennox Serpentine Shears

	Capacity	Stock No.
No. 1	16 ga.	H-745
No. 2	10 ga.	H-641
No. 3	1/4 ga.	H-710

#### DRILL PRESSES

	Capacity	Stock No.
20" Rockwell	1"	H-400
30" Sibley	2"	H-462
4" Radial	3/4"	H-868
No. 2 Wash.	1"	H-980

#### LATHES

	Stock No.
13"x6' Willard	H-1030
18"x8' Milwaukee	H-916

##### Ryerson Milwaukee Eng. Lathes

Capacity	Stock No.
24"x10'	H-918A
24"x12'	H-918B
24"x14'	H-918C
24"x16'	H-918D

##### Advance Engine Lathes

Capacity	Stock No.
30"x12'	H-1005
30"x16'	H-1007

##### Fifield Triple Geared Lathes

Capacity	Stock No.
30"x40'	H-1054

#### SHAPERS

##### Rockford Back Geared Shapers

Capacity	Stock No.
16"	H-570
20"	H-571

##### Stephoe Back Geared Shapers

Capacity	Stock No.
16"	H-1077A
20"	H-1077B
24"	H-1077C

#### PLANERS

##### Rockford Planer

Capacity	Stock No.
36"x36"x18'	H-578

##### Ryerson-Martin

Capacity	Stock No.
36"x36"x10'	H-999A
36"x36"x12'	H-999B
36"x36"x14'	H-999C
36"x48"x16'	H-999D

#### MILLING MACHINES

##### Ryerson-Conradson Milling Machines

	Stock No.
No. 3 Plain	H-886
No. 3 Universal	H-886A

#### SCREW MACHINES

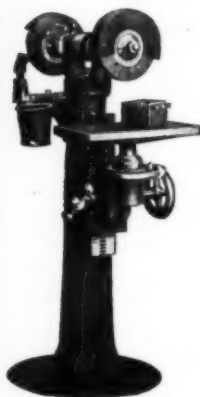
	Stock No.
No. 3 S. & K. (Hand fd.)	H-818
No. 3 S. & K. (Pwr. fd.)	H-818A

**JOSEPH T. RYERSON & SON**  
MACHINERY

CHICAGO NEW YORK BUFFALO ST. LOUIS DETROIT

# La Salle Grinders

Unexcelled as Practical Tools



## LA SALLE No. 1

Grinding wheels.....	8"x1"
Between wheels.....	15"
Height to spindle center.....	40"
Table surface.....	8"x14"

Has vertical travel of 12" on guides,  $\frac{3}{4}$ " by micrometer, and may be raised to within 2" of spindle center. Wheel grinds to center of a surface 9" wide.

Spindle speed.....	3,000 r.p.m.
Countershaft speed.....	1,000 r.p.m.
Floor space.....	18"x24"
Net weight.....	300 lbs.

## La Salle No. 1 Plain and Surface Grinder With Micrometer Adjustment

For general use in shop and tool room. The knee is brought to any desired position by vertical hand-wheel, which turns a pinion in rack and is securely clamped by hand-nut. The table is carried by stiff post which moves vertically in the knee and is kept from turning horizontally by a feather. The horizontal hand-wheel encircles the post, and engaging it by a screw-thread, provides a fine table adjustment for depth of cut. The hand-wheel carries a large dial graduated in thousandths, with provision for finer adjustment. The steel spindle runs in anti-friction bearings reamed together.

**La Salle Tool Company**  
La Salle, Illinois, U. S. A.

# La Salle Grinders

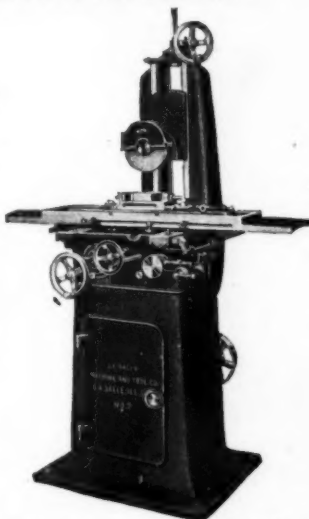
Are Improved to the Minute

## La Salle No. 2

Grinds work 20" long, 6" wide and 10" high, with a 7" wheel.

Table travels automatically in both directions. A hand-power table movement can be operated without changing automatic feed. Also has automatic cross feed in either direction with automatic stop.

Net weight 1,500 lbs.



## La Salle No. 2 Automatic Surface Grinder

Experience has demonstrated the superiority of this type of machine for grinding dies, punches and a wide range of small tools, as well as for many manufacturing jobs, such as finishing bright and true surfaces and parts of tools and instruments. The improved design of the La Salle No. 2, combining great rigidity, perfect alignment and exceptional ease of manipulation, places it in the first class as an ideal tool for work within its range. Arranged for wet grinding if desired, also for motor drive.

## La Salle Tool Company

La Salle, Illinois, U. S. A.

# La Salle Grinders

Are Tools of Honest Value



## LA SALLE No. 3

Grinding wheels.....	12"x1"
Between wheels.....	25"
Table working surface. 7"x24"	
Longitudinal movement....	24"
Traverse movement.....	8"
Vertical travel .....	10"
Height to spindle center..	42"
Spindle speed.....	1400 r. p. m.
C. S. speed.....	700 r. p. m.
Floor space.....	63"x46"
Weight, without c. s.	800 lbs.
Weight countershaft.....	50 lbs.

## La Salle No. 3 Plain and Surface Grinder

Large, Rigid, Accurate—for Shop and Tool Room

Like all La Salle Grinders, the No. 3 is as nearly perfect as human skill can make it. The spindle is of steel, ground, and runs in bronze bearings. Each bearing has large oil reservoir and felt oilers. A vertical screw feed dial is graduated in thousandths, with provision for smaller subdivisions. The longitudinal movement, operated by spiral gear and rack, is perfectly smooth. All bearing surfaces are fully protected. Ways are hand-scraped to master plates. Furnished with both plain and surface grinding wheels, or with the latter only. Arranged for wet grinding if desired.

**La Salle Tool Company**  
La Salle, Illinois, U. S. A.

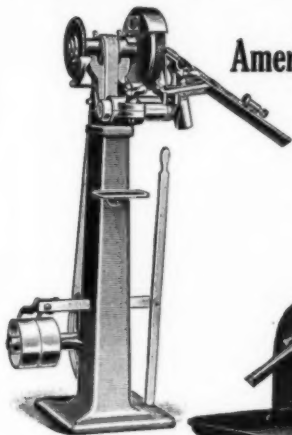
# La Salle Grinders

## Style C T A American Drill Grinder

For Dry Grinding Only

Unexcelled as a dry grinder for twist drills from  $\frac{1}{8}$ " to  $2\frac{1}{4}$ " diameter. Extra large drill holder has capacity from 1" to  $3\frac{1}{2}$ ".

Style B T A is a similar machine with overhead countershaft.



## Style W T A American Drill Grinder For Wet or Dry Grinding

Has the same drill capacity as style C T A, shown above.

A handy feature on all American Drill Grinders is the Caliper Jaw device for getting any desired clearance without making a single move other than for regular adjustment for size of drill. Write for complete specifications, which outline their splendid design in detail.

American Drill Grinders are furnished wet or dry, motor driven, with self-contained countershaft or with overhead countershaft, as fully described in our literature.



## La Salle Tool Company

La Salle, Illinois, U. S. A.

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# Accuracy and Precision

are followed out to the last detail  
in the construction and testing  
of the

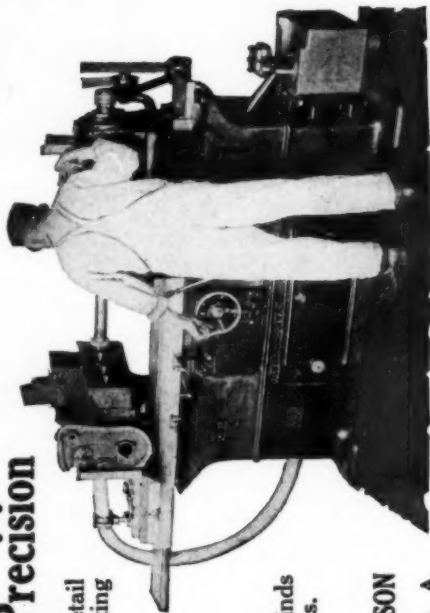
## Whitney Cylinder Grinder

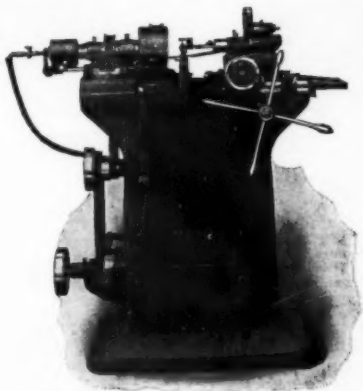
equipped for grinding all kinds  
of Gasoline Engine Cylinders.

*Write for new catalog*

**BAXTER D. WHITNEY & SON**  
Incorporated  
WINCHENDON, MASS., U. S. A.

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## For Grinding Small, Short Holes

The Heald No. 85 is a new, simple, productive machine for small, short work. It is designed so that movement of the pilot wheel to the right draws the wheel from the work and automatically puts on a brake, stopping the workhead and shutting off the water. It is furnished with a quick-acting collet with a capacity of  $\frac{3}{8}$ " to 3" diameter. Capacity for work  $\frac{1}{2}$ " to 2" dia. x 4" long.

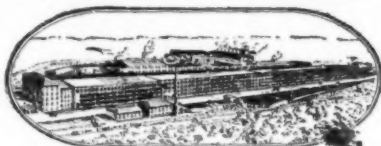
The table is provided with positive stops, enabling the operator to grind up to a shoulder. The machine is also equipped with a flexible idler, automatic wheel guard, water attachments and simple countershaft.

*Write for literature*

**THE HEALD**  
**MACHINE**  **COMPANY**  
Worcester Massachusetts

# MORSE SILENT CHAIN DRIVES

For All Transmission Purposes



The largest factory in the world devoted exclusively to the manufacture of silent chain power transmission, from the smallest to 5,000 h. p. Flexible as a belt, positive as gears, longer life than either. Write for the surprising "Chain of Evidence."



**Morse Chain Co.**  
Ithaca, N. Y.

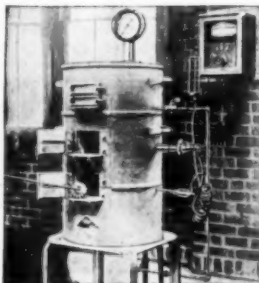
*Morse Engineering Service  
Assistance Free*



A Good Way To Save—Install

## The "TRIAD" 3-in-1 Furnace

Cost of Fuel  
Reduced Two-Thirds



Has three compartments for:

- (1) Pre-heating
- (2) High-heating
- (3) Drawing the temper

These operations can be carried on simultaneously. One burner, for gas or oil, instead of the usual three, heats all three sections.

It is more efficient than three separate furnaces. Its cylindrical shape insures absolutely uniform heating. Heats high-speed steel in 20 minutes from a cold start. No oxidation.

Write for Catalog No. 5

**The W. R. Bennett Co.,** P. O. Drawer X  
Elmwood, Conn.



# No More Dull Tools

## Where The Thompson Grinder is Used

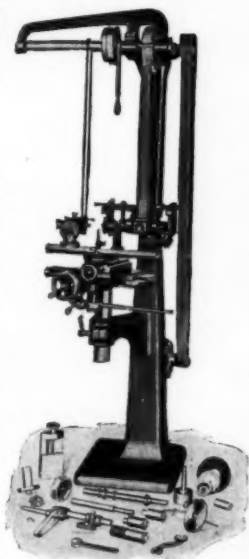
This universal tool and cutter grinder has solved the sharpening problem in many shops. It does the work

### *So Quickly*

and easily, even in the hands of a green operator, that keen cutting tools become the rule—not the exception—and naturally production is boosted.

### *Its Wide Range*

of work is also very gratifying. It does circular, internal and surface grinding on cutters, reamers, counterbores, drill bushings, arbors, small machine parts, etc. Tool grinding is done on one side and cutter sharpening on the other side without interference.



Self-contained—For Motor drive  
Also made for Jackshaft drive

*Mechanics everywhere are glad to receive our folder, which contains many illustrated, practical hints.  
Write for a copy*

**The Thompson Grinder Co.**  
**Springfield, Ohio**

# CULLMAN SPROCKETS

STOCK AND TO ORDER



Diamond, Whitney, Baldwin, Duckworth and  
Coventry Chairs, Block, Roller and  
High Speed Silent types on hand



*CATALOG*

**CULLMAN WHEEL CO.,**  
1359 ALTGELD STREET

**CHICAGO**

**End View**

**OF A**

# **Badger Grinder**



Compare this view with the ordinary type of disc grinder construction. It does not take much of a mechanic to immediately see the increased stability of the Badger Grinder.

Instead of an unsupported rockershaft permitting destructive vibration, the Badger Grinder is designed with the rockershaft positively located in a rigid saddle carried on an extremely stiff and well ribbed boxed knee. There is no such thing as a "springy" rockershaft in the Badger Grinder. All other essentials on these machines are designed with proportionate strength. The result is increased accuracy on a real production basis.

The Badger Grinder is not an experiment. If you want to learn how much faster or closer to requirements this machine will produce your work you have only to send us a few of your unfinished parts for a free demonstration. We guarantee to give you authentic data on the disc grinder method of finishing your parts at a speed and tolerance which was never before considered possible.

*We have a complete line of grinding discs, cylinder wheels, soft metal wax, and disc wheel cement*

## **Badger Tool Company**

E. B. Gardner, Pres.

R. D. Gardner, Treas.

**Beloit, Wisconsin, U. S. A.**

*Representatives in all principal cities and foreign countries*

# Abbott Steel Bearing Balls

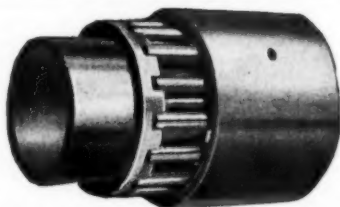
High Grade—Highly Finished



We shall be glad to have your inquiries and make estimates

**The Abbott Ball Company**

Elmwood District, Hartford, Conn.



## JOURNAL ROLLER BEARINGS

LIGHT DUTY

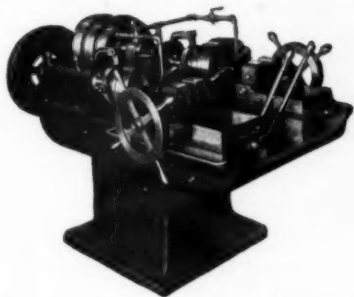
HEAVY DUTY

ONE OR ONE THOUSAND

**THE GWILLIAM COMPANY**

253 WEST 58th ST., (at Broadway), NEW YORK

# MURCHEY Pipe Threading Machinery



## Murchey Type 2 Semi-Automatic Double Head Nipple and Pipe Threading Machine

**Made in Sizes to Cut  $\frac{1}{8}$ " to 2" Pipe**

It reams and threads in one operation. Cuts from a close nipple to full length of pipe. No attention required after starting pipe into die.

Provided with Murchey Self-Opening Die Heads, which insure quick, positive, universal adjustment—true, accurate, uniform threads.

### **Cuts 3500 1-inch Threads in 10 Hours**

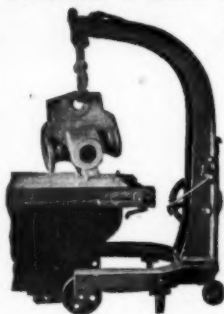
One man will cut on this machine from 3000 to 3500 perfect 1-inch threads or 1750 high-grade nipples in ten hours.

*Write for Catalog and prices*

## **Murchey Machine & Tool Co.**

**58 Porter Street, Detroit, Mich.**

## Whose Fault Is It?—



Whose fault is it if from six to ten men are required to lift a heavy casting which could easily be lifted by one man and the

### Canton Portable Crane and Hoist

This tool, otherwise known as "The Handiest Tool in the Shop," will lift any work up to 4000 lbs., and quickly carry it to parts of your shop where nothing else can reach. In smaller shops it satisfactorily takes the place of an overhead system, and, at the same time, it serves in the capacity of a crane, hoist and truck.

Write for  
Booklet

**Canton Foundry & Machine Co.**  
**Canton, Ohio**

Permanent Exhibit Salesroom, Grand Central Palace, New York



## ELECTRIC EUCLID HOISTS

### Let OUR Engineers Save YOUR Time

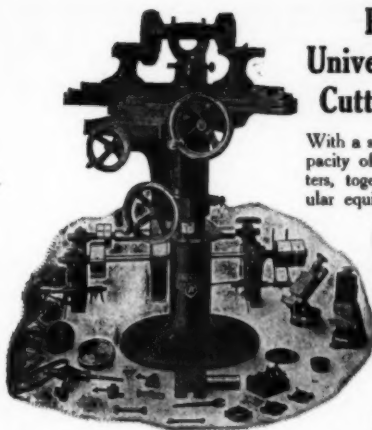
It is possible that you realize the need of modern material handling equipment but cannot spare the time or men to work out the details.

Our engineers are constantly solving these difficulties and helping manufacturers reduce expenses.

Furthermore, this service is absolutely free.

Will you take advantage of it?

**The Euclid Crane & Hoist Co.**  
Dept. C                      EUCLID, OHIO, U. S. A.



## Premier Universal Tool and Cutter Grinder

With a swing of 8" and capacity of 15" between centers, together with the regular equipment furnished, it will grind almost any cutter or other tool used in a modern tool room. Workmanship, material and design of the highest quality.

*Write for descriptive  
Circular*

**Immediate Delivery**

## Simmons 10" Universal Index Centers



Manufactured with the idea of supplying the market with a device in which accuracy, durability and simplicity are the main issues and in which no one feature is sacrificed for another.

The price is the lowest consistent in keeping with the above standards. Our production is such that immediate delivery can be made.

***You need one? Order now!***

**Simmons Machine Co., Inc., Albany, N. Y.**

New York, 1001 Singer Bldg. Detroit, 804 Dime Savings Bank Bldg.  
Buffalo, 358 Ellicott Square



## Are You Looking For Hobs?

Our line of "Quality Tools" consists of only the highest-class tools, both in material and workmanship. Every step in their manufacture is under constant inspection. All tools are *exactly* right before they leave our plant.

## For Milling Cutters?

No milling machine is better than its cutting tools. Michigan cutters insure accuracy, more production and cutter economy.

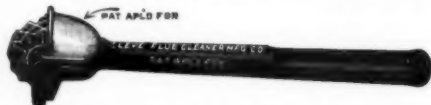
## Special Tools?

Our tools cut smoothly and accurately, and are distinguished for *quality*. Do you need *good* cutting tools?

*Drop us a line now*

**Michigan Tool Company**  
Detroit, Mich., U. S. A.

## "Duplex" Emery Wheel Dresser With Detachable Aluminum Hood



This *patented hood* adds but little to the weight of the Dresser and *protects the operator* against flying particles.

The handle is both simple and durable. You can get it equipped with: (1) the "Diamond" Cutter, designed for truing large, coarse wheels, which does the best work of any dresser made; or (2) the "Improved" Cutter, designed for truing medium and fine wheels. These cutters also run on a bronze bushing.

*Glad to send one on trial. Your address?*

**Cleveland Flue Cleaner Mfg. Co.**  
321 Frankfort Ave., N. W., Cleveland, Ohio



The Largest Measure of  
**Economy and Safety**  
With Marschke Motor Driven Grinders



**Direct Current**  
**"Economy" Grinder**  
**110 or 220 Volt**  
(See Illustration)

Motor, 2 h. p.  
Emery wheel, 12" x 1½" or 2".  
Emery wheel collars 5½" x 1".  
Length of arbor, 26".  
Arbor where wheel goes, 1" diameter.  
Center of arbor to floor, 39".  
Base on floor, 20" x 23".  
Speed full load, 1,600 r. p. m.  
Motor entirely enclosed.  
Journal self-aligning S.K.F.b.b.  
Automatic oil switch and starter.  
Exhaust fan, 6" x 2".  
Exhaust fan bearing, S.K.F.b.b.

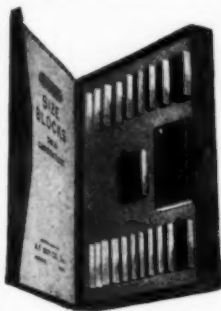
(Also made for  
Alternating Current)

To install it is the easiest thing in the world—you place the machine on the floor, connect 2 or 3 wires, and you're ready for business. It is simple and efficient in every way, affording bedrock economy.

Among its features are a foot pedal, which is fool proof and a big time saver; adjustable cast steel hood and adjustable steady rest; spark breaker to take up space in hood as wheel wears down, which adjusts automatically with steady rest; removable hood cover, with single thumbcrew; an efficient exhaust fan which starts with motor—no separate exhaust system necessary, etc.

*It will pay you to get acquainted with these  
ahead-of-date Grinders. Write for full data*

**Marschke Manufacturing Co.**  
**Indianapolis, Ind.**



**Think of This:**



## **Size Blocks**

Were expressly designed for everyday use, and at a price within the reach of every shop. They are of great value in setting up work on the machine, laying it out on the bench, checking, etc. The field of use is so broad that we consider this set one of the really necessary tools that machine shops should supply freely to their workmen.

**Full details gladly sent**

**A. F. WAY CO., Inc., Hartford, Conn.**

Export Department, 77 Broad St., New York City

*Makers of "LOWAY" Sine Bar and Sine Square*

## **Do You Know About These**

### **Herlth Adjustable Parallels?**



Indispensable in gauging slots, setting sine bars, height gauges and button snap gauges—in fact any female gauges. Obviate necessity of making special size-blocks for obtaining odd sizes.

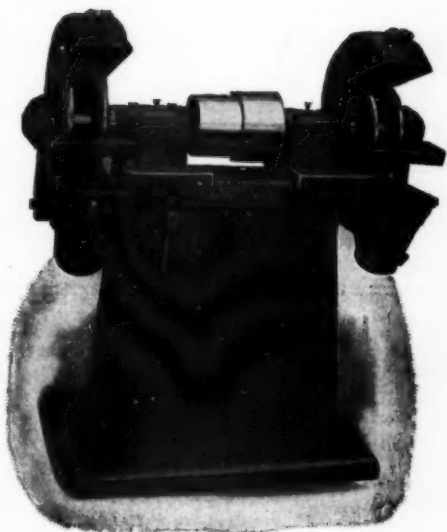
Made of especially prepared steel and thoroughly seasoned. They are tested for accuracy and will not change. *Surfaces guaranteed to be parallel:*

---

*Do you want to look into them?*

**O. B. Herlth Manufacturing Co., 90 John St., Hartford, Conn.**

# Grind it on a "Blount"



No. 6½

Our eight sizes meet all requirements of general grinding work. The large bearings insure accurate work under continuous heavy load.

**J. G. BLOUNT CO., Everett, Mass.**



Style "C"



The Hinge



Style "Y"



Style "B"



Style "G"



Style "O"



Style "L"



Style "T"

### GITS OIL CUPS

Give perfect satisfaction where others fail. State style and size in which you are interested, and we will send free samples and catalog.

GITS BROS. MFG. CO.  
1940 SO. KILBOURN AVE., CHICAGO



Style "H"



### Handles From Steel

For power tools and similar purposes

Accurate, highly finished, complete on receipt, ready to attach. Manufactured as a specialty, we offer you the result of quantity production, in quality and price. Estimates given on large screw machine work, handles and screws of any description.

Write for price list and discounts

**The Cincinnati Ball Crank Co.**  
Oakley, Cincinnati, Ohio



# Reid No. 2 Surface Grinder

A Precision Tool of Highest Practical Value

Grinds  
18" Long  
6" Wide  
11½" High



Not only is this machine exceptionally rigid, with a true-running wheel and the closest adjustments, but experience and care have enabled us to make those

features as nearly permanent as is humanly possible.

*All castings, made of clean gray iron, are roughed and seasoned, then finished and scraped to master plates—they are permanently set.*

*The spindle, which is hardened, ground and lapped, runs in phosphor bronze boxes, with adjustments for wear and end play.*

*A compact spring curtain renders wearing surfaces impregnable to dust—prevents accumulation of dirt and grit—extremely important in practical operation.*

*Write for full description*

**Reid Bros. Co.** 59 Park St. Beverly, Mass.

Export Department, 77 Broad St., New York City

English Agents, Oliver Machinery Co., Ltd., 201-03 Deansgate, Manchester, Eng.

Also Manufacturers of the Reid Universal Angle Fixture

# Pattern Shop Machinery

Special Prices if you refer to this ad.



## Band Saws

Chicago No. 00 27 in. Wheels  
 " No. 0 32 " "  
 " No. 1 36 " "



## Saw Tables

Chicago No. 5 Stationary Table  
 " No. 9 Tilting Table  
 " No. 10

Boring attachment if wanted.



## Jointers

8 in., 5 and 6 ft. tables and guard.  
 12, 16, 20, 24 and 30 in., 7 ft. tables  
 and guard.

Trimmers, Lathes, Core Box Tools, etc.

Ask for full descriptions

## Chicago Machinery Exchange

1211-1227 Washington Boulevard, Chicago

## Weigel Single-Wheel "Kwality Kaster"

Will not crush or break. Swivels on steel machined rollers. The best single caster on the market.

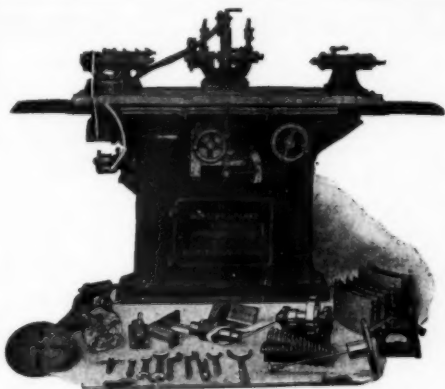
## Double-Wheel "Trukaster"

Lasts three times as long as others. Easiest running, strongest, and most durable double-wheel caster made. Has heavy plates and axles.

Write for Circular

**THE HAMILTON  
CASTER & MFG. CO.  
HAMILTON, OHIO**





**Here's the Universal Grinder  
That Lives Up to Its Specifications**

## **All The Time**

And its specifications insure strength of design; economical operation; and the highest classed workmanship. These elements that make for success in any tool room appliance, are combined from the experience gained in over a quarter century of machine tool working.

The automatic cross feed, table drive and reversing mechanism is a feature of the **W. & P. Heavy Duty Universal Cylindrical Grinder** that insures accuracy and reliable adjustments.

*Send for Bulletin U-2 which describes many other interesting features*

Machines shipped from stock same day orders received

**The Webster & Perks Tool Co.**

**P. O. Box 1340, Springfield, Ohio, U. S. A.**

## Changes Jobs In 30 Seconds

### Fenn No. 1 Portable Gear Cutter Grinder

A big time-saver. It has attached to the top of the table a very effective stop finger which is so regulated by means of two adjusting screws that only thirty seconds is required to change from grinding a 40 pitch cutter to a 3 pitch cutter.

It can be quickly and easily carried to any bench in the shop and instantly attached to any lamp socket. Unexcelled for grinding gear and milling cutters, cutting brass tubing, etc.

*Full details gladly mailed*



## Fenn Manufacturing Company Hartford, Conn.

W. A. FENN

W. L. FENN

Cable Address "Fenn"—Western Union Code

## Harris No. 4 Universal Automatic Hob Grinder

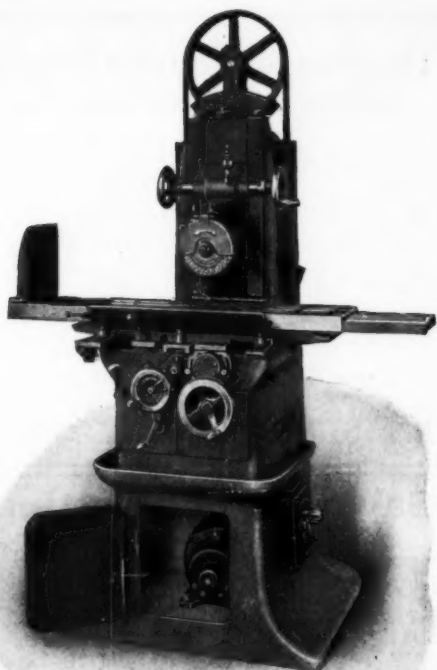


Especially designed for the rapid and accurate grinding of hobs and form cutters, it is also valuable for re-gashing worn milling cutters and grinding work of square and octagonal shapes. Grinds on both forward and return stroke. Can be handled by inexperienced help. Automatic indexing device makes it possible for one operator to attend to several machines or do other work.

*Write for Folder H. K., which explains fully*

## The H. E. Harris Engineering Co. Bridgeport, Conn.





## A Great Improvement

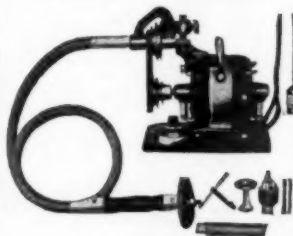
### The Abrasive Tool Room Surface Grinder

Not only an improvement, but a *great* improvement. The biggest advance in years in grinder construction. Fully 50 per cent heavier and that much better. Send for specifications and look them over.

**Abrasive Machine Tool Co.**  
East Providence, R. I.

# The "Strand" Portable Grinder

Equipped with Anti-Friction Flexible Shaft



*An ideal combination.*

The Strand shafting is the most flexible made. It has all the strength and durability of the rigid shaft and is sufficiently tough and flexible to carry a load while in a curved position. Friction is reduced to an absolute minimum.

The "Strand" will save time and money wherever it is used. All Strand products are fully guaranteed.

*Our several types and sizes are the result of 15 years' practical experience. Write for Circulars*

**N. A. STRAND & CO.,** 625 W. Jackson Blvd., Dept. H, CHICAGO

## Saves Moving Castings

Stow Flexible Shaft is Easily Carried



**HANDY**, not only for grinding castings, but for a hundred-and-one odd jobs of grinding, drilling, tapping, reaming, polishing, etc. Hurries up repair jobs. Write for illustrated circulars.

**Stow Flexible Shaft Company**

26th & Callowhill Sts.,

Philadelphia, Pa.

***"Sharp Tools  
Defeat Sharp  
Competition"***

**New No. 190  
"WELLS"  
GRINDER**

will do everything that  
many more expensive  
machines will do.

See it on your dealer's  
floor or write for Ma-  
chine Tool Cata-  
log No. 39.



**Machine Tool Division**



**GREENFIELD TAP & DIE  
Greenfield, CORPORATION Mass.**

# Ott Grinders

Combine the essentials of  
**ACCURACY** and **RIGIDITY**  
with **SIMPLICITY** of design

Simplicity accounts for their price, and for  
their popularity among good operators.

5"x18" Plain—10"x32" Universal—6"x6" Internal

**Ott Grinder Company**

200 West Tenth St., Indianapolis, Ind.

## Giant Universal Joints

$\frac{1}{2}$ ,  $\frac{3}{8}$ ,  $\frac{3}{4}$ ,  $1\frac{1}{8}$ ,  $1\frac{1}{4}$ ,  $1\frac{5}{8}$ ,  $1\frac{3}{4}$ ,  $2\frac{1}{8}$  and  $2\frac{1}{2}$  in.



**Self Oiling  
Dirt Proof**

**For  
Heavy  
Service  
to an  
Angle  
of 45  
Degrees**

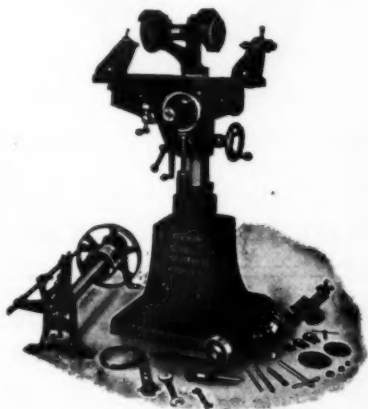
Wearing contacts are of hardened steel and large diameters. They give perfect service, without play or looseness, up to an angle of 45 degrees. We make the Vanderbeek Universal Ball Joints for higher angle drives. Put your angular driving problems up to us.

**Ainslie Machine & Tool Works**

Successors to Vanderbeek Tool Works  
**HARTFORD, CONN.**

# Grand Rapids No. 1

Universal Cutter, Reamer  
and Tool Grinder



Simple in Design  
Efficient in Service  
Accurate in Workmanship  
Economical in Cost

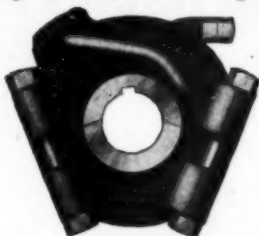
*Ask for bulletin giving full particulars*

**Grand Rapids Grinding Machine Co.**

17 Ottawa Ave., N. W.

Grand Rapids, Michigan, U. S. A.

## Conway Double Clamp Clutch

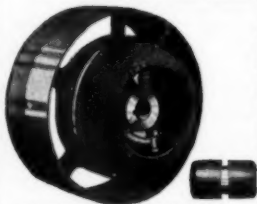


CONVENIENCE demands the split clutch—hence this Double Clamp Clutch, which is fundamentally a compression clutch with different carrier and cone parts. Those parts are so built that the whole clutch may be taken apart and removed from shaft without disturbance to other fixed equipment, such as pulleys, collars, hangers and the like. Split sleeves are also furnished when required. *Write for our interesting Clutch Catalog.*

**CONWAY & COMPANY, STOCK YARDS P. O. CINCINNATI, O.**

## Edgemont Friction Clutches—

**Lineshaft, Countershaft, Pulley Type, Etc.**



**Enclosed Type, Self-Oiling**

A clutch for every purpose—that is the wide extent of the Edgemont family. And they have a large family of satisfied users, including leading machine tool builders. We will be pleased to furnish names on request.

Every Edgemont clutch is built to stand the strain of being thrown in and out constantly, and will pull all that a belt will at any speed. Each and every "Edgemont" will quickly pick up heavy loads without injury to the clutch.

*Send for Catalog and let us figure on your needs*

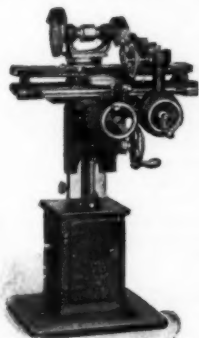
**The Edgemont Machine Co.**  
**Dayton, Ohio**

Special Clutches and Transmission Machinery for all purposes.

THE

STERLING

## Universal Tool Grinder



**You can depend on the  
speed, accuracy and rigidity**

Of the Sterling Universal Tool Grinder for efficient service in your tool room, just as we depend upon it maintain our reputation as builders of high grade, dependable machinery since 1874.

Completely universal in all movements. Table revolves entirely around head. Wheel can be used at any angle.

### **OUR CATALOG**

*Tells why users find it profitable*

**McDonough Mfg. Company**

**Eau Claire, Wisconsin, U. S. A.**

# Shor

## Universal Electric Drills

**Licensed Under Burke Universal Motor Patent**

Indispensable for all kinds of drilling, reaming and wood boring in the building of automobiles, steel and wood cars, boilers, auto bodies, and in railroad and structural shops, ship and dry dock work and machinery repairs. Can be operated on alternating or direct current, 110 to 250 volts. Furnished with cord and suitable feed attachment ready for immediate use. Attach to any lamp socket.



000	Drilling Capacity	1-4"
00	"	5-16"
0	"	3-8"
01	"	1-2"
1	"	9-16"

**No. 6 Electric Grinder.**

*Jacobs Chucks furnished as regular equipment.*

**Agents Wanted**

### Independent Pneumatic Tool Company

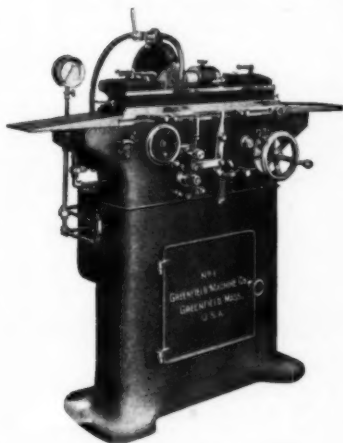
Chicago	New York	Pittsburgh	Cleveland	Detroit
San Francisco	Birmingham	Montreal	Toronto	



The No. 1 *Greenfield* Plain Grinder

## Equals Big Costly Machines

In the Finishing of Small Parts



A  
Small  
Grinder  
which  
gives  
Big  
Results

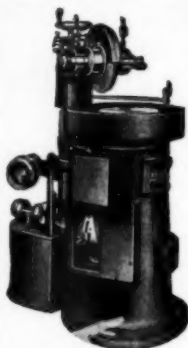
### The Plain Grinder with the Fast Feed

It has the simplest, most durable and efficient mechanism ever devised for imparting the reciprocating motion to a grinding machine table, insuring *two to three times as rapid cuts* as you can get on larger and more expensive machines. It is an economy machine in every sense of the word for the quick and accurate grinding of small cylindrical parts.

*Send sketches or sample parts for cost estimate*

**Greenfield Machine Company**  
Greenfield, Mass., U. S. A.

*Also Manufacturers of the Greenfield Universal Grinder*



## Curved Surfaces

**Ground Accurately  
To Within .00025"**

For grinding flat, convex and concave surfaces to the closest accuracy, you can find nothing better than the—

### **12" Bristol Rotary Precision Grinder**

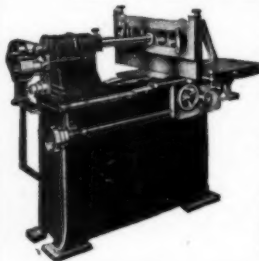
It is unsurpassed in its combination of ease of manipulation, economy of operation, and accuracy of results.

*Complete information at your service*

**Bristol Machine Tool Co., Bristol, Conn.**  
*Successors to The C. G. Garrigus Machine Co.*

## Internal Grinder of Supreme Merit

**The "Schmidt"—Rapid and Exact**



It regrinds tractor, truck, and engine cylinders—in fact, it does any grinding within its capacity—at a high rate of speed and with absolute accuracy.

It occupies only 3'x5' floor space. It is easily handled and operates at minimum cost.

Emery wheel arbor is made of vanadium steel. There is a ball-bearing rocker arm countershaft and ball-bearing in rear end of emery wheel spindle.

*For production as well as precision. Details gladly sent.*

**B. L. Schmidt Co., Dept. A 8, Davenport, Ia.**

# W & M No. 1 Universal Grinder



A Perfect Tool Room Machine.

Centers swing 10" diameter 30" long.

*Circular on request*

**Wilmarth & Morman Co.**

**Master Grinder Makers**

1185 Monroe Ave., N. W., Grand Rapids, Mich., U. S. A.

# Armstrong Drop Forged Wrenches

Superior Design and Quality



All  
Kinds



All  
Sizes

*Catalog free*



**Armstrong Bros. Tool Co.**

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.



## ? Can You Afford Not to Afford the Hartford Taper Gage

It enables you to see at a glance just where any taper inaccuracies are—also to tell with equal ease when your tapers are O. K.

The tool is simple to operate. May be placed on floor or bench and adjusted to operator's height. Adjustable from No. 0 to No. 14 B. & S. taper. Just put your taper in it and—presto!—inaccuracies of less than 1-1000 of an inch can instantly be detected.

They are not expensive. And they soon pay for themselves in time saved.

*Do you think you can afford  
not to afford the use of this in-  
expensive, time-saving device?*

**Hartford Special Machinery Co.**  
285 Homestead Ave.,      Hartford, Conn.

# Two Great Machines

## Manhattan Type B. Screw Press For Die Makers

Something new. A strictly *one-man machine* which is *guaranteed up to 80,000 lbs. pressure*. Gives perfect alignment to punch and die. Eliminates tendency to gouge or nick. *Much better and easier to handle* than a punch press that costs ten times as much—saves time and labor and insures perfect results.

*Better have the folder*



Type B



## The Manhattan Surface Grinder

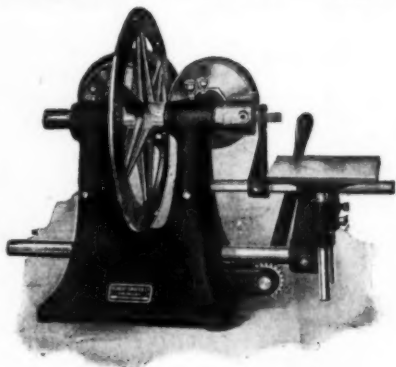
A Revelation in quiet efficiency. It is compact, yet so massive and rigid, with over-size phosphor bronze bearings, that there is no vibration under the heaviest work. Dials on both feeds graduated in thousandths. Gives clearance where most needed, and is improved in nearly every feature.

*Specifications on request*

Let us tell you about one or both of these great machines

**Manhattan Machine & Tool Works**  
Dept. A., Grand Rapids, Mich.

## Rickert-Shafer Machines Do Fast, Economical Tapping



The illustration shows our  $\frac{3}{8}$ " Horizontal Bench Tapping Machine, which we also make in 3-16" and 5-16" sizes, bench or floor type. Can be direct connected to motor.

Our machines are of excellent design and embody expert workmanship. They are all friction driven, which insures a smooth running chuck spindle, and practically eliminates all tap breakage. Maximum production is achieved with ordinary labor or a handy boy.

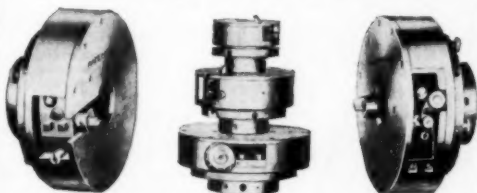
Our Verticals are made in two sizes,  $\frac{1}{4}$ " and  $\frac{1}{2}$ ". The Radial has capacity for  $\frac{1}{4}$ " and  $\frac{1}{2}$ " in steel, and is a favorite with manufactures of auto and machine tool parts. Its rigidity insures accuracy.

*It will pay you to write for our Tapping Machine Bulletin*

**Rickert-Shafer Co., 1110 Cherry St., Erie, Pa.**

# They Do A Lot of Things

And Save You Money On All of Them



## Mummert-Dixon Facing Heads

### With Automatic Feed

They attach to any sort of turning machine, from the simplest form of lathe to the most complicated milling or boring machine, and they do easily and rapidly work which otherwise is slow and difficult of accomplishment. They have a wide range of usefulness, because they can be operated in connection with any tool or apparatus that will hold and drive a bar, or without a bar on the end of the spindle in such machines as drill presses, milling machines, boring machines, etc.

The head is self-contained, requiring no external contact to operate the feed. The smaller heads feed in when running in one direction, and out when turning the opposite way. The larger heads feed either in or out without changing the direction of rotation.

*A convenience and economy you wouldn't do without if it cost two or three times as much. Write today for complete description.*

## Mummert - Dixon Co.

Gay & Phila. Sts., Hanover, Pa.



THERE'S a toolmaking shop in Detroit that refused to be stumped by any of the many problems our motor car builders present—the Michigan Tool Company.

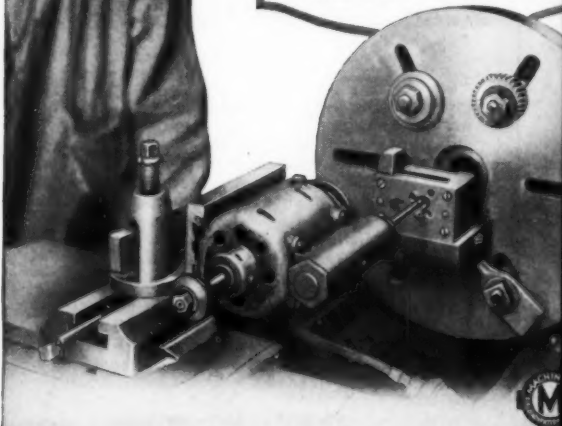
This concern is fully equipped for any job—which means Dumore Grinders are there to do their bit.

In building jigs, standard bushings are used, the outer diameters running in an ascending series of sizes and calling for an arbitrary "constant" for the press-fit.

For grinding of this kind the Dumore is the ideal tool—high speed, dynamically balanced, non-vibrating, easy to move out of the way to permit the various holes to be indicated. *Write for information.*

**WISCONSIN ELECTRIC CO.**

4317 Sixteenth St., Racine, Wisconsin



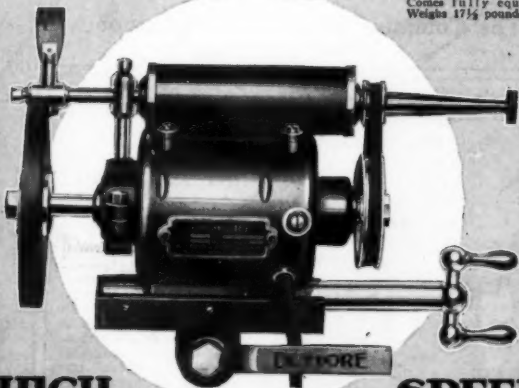
# DUMORE



# *Making Accuracy A Marketable Commodity*

## EQUIPMENT A

For general tool room use.  
Includes High Speed Internal  
Spindle A with reach  
of 3 inches. 30,000 R.P.M.  
Comes fully equipped.  
Weights 17½ pounds.



**HIGH SPEED  
GRINDERS**

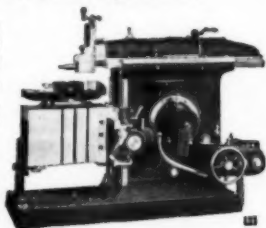
# Columbia Heavy Duty Shapers

**Massive and powerful  
With latest operating conveniences  
Machines you can depend on**

Cut shows how we equip them with geared speed box, friction clutch and brake, suitable for single pulley or motor drive. Also furnished with cone drive.

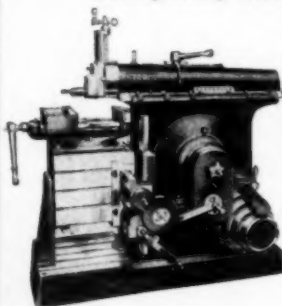
Sizes 16, 20, 24 and 28 in.

*Write for detailed description*



**The Columbia Machine Tool Company  
Hamilton, Ohio**

## 16-Inch "STAMCO" Crank Shaper Heavy Duty Back Geared



The "Stamco" is a superior machine for heavy service. The base has a large planed surface, and is of the extended type and deeper than usual, affording a solid foundation for the machine. All adjustments can be set to 1000's of an inch and can be made while the machine is in motion. Head and vise are graduated in degrees and can be set to any angle. Cross feed, 24"; vertical feed, 15".

*Write for details*

**THE STREINE TOOL & MFG. CO.,**

**New Bremen, Ohio**



## **Rhodes 7" Horizontal 3½" Vertical Shaper**

A versatile machine that is appreciated in any toolroom. As a horizontal shaper it has a 7" stroke, and it may be quickly and easily converted into a 3½" slotter, adjustable to 10 degrees. For accuracy it meets every requirement.

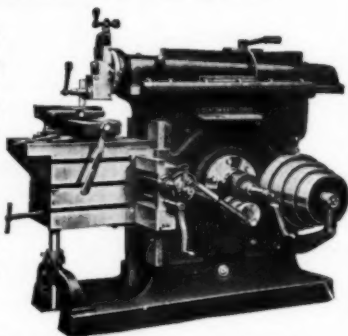
DEPT. H. L.

**The Rhodes Mfg. Company**  
Hartford, Conn.

# SHAPERS

12", 14", 16"  
Plain Crank,  
16", 20", 25"  
B. G. Crank,  
either Cone  
Driven or  
through  
Speed Box.

28" and 32"  
Back Gear-  
ed Crank,  
Single Pul-  
ley Drive.



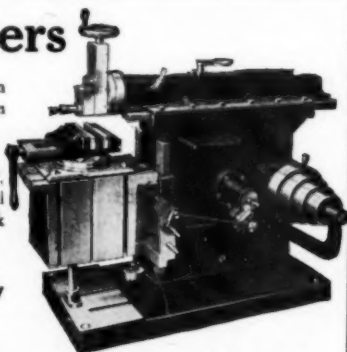
**The Smith & Mills Co.** Station B.,  
Cincinnati, O., U.S.A.

## Shapers

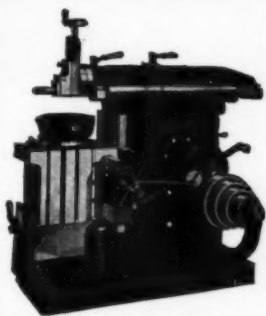
The best medium  
priced Shaper on  
the market.

Built in 16", 20",  
and 24" sizes, all  
back geared crank  
machines.

A few for early  
delivery.



**The Osborne & Sexton Mchy. Co.**  
Columbus, Ohio



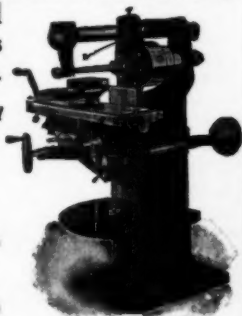
# Steptoe Shapers *and* Millers

are the product of seventy-four years  
of experience in the manufacture of

## High Grade Machine Tools

Thousands of our machines in shops  
giving daily satisfaction are a recom-  
mendation for our product which should  
not be overlooked  
when buying shapers  
and milling machines.

*We will be glad to send  
catalogues on request*



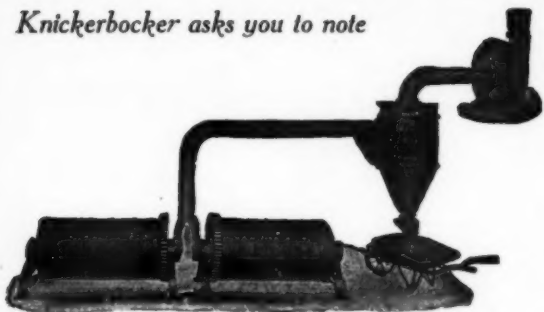
—The—

**John Steptoe Co.**

Stock Yards Station

Cincinnati, Ohio

*Knickerbocker asks you to note*



## Who ---- And How Many "Rarefieds" They Use

Solvay Process Co.....	26
Westinghouse Elec. & Mfg. Co., Pittsburgh, Pa.....	21
Western Electric Co., Chicago.....	12
Weston-Mott Co., Flint, Mich.....	12
Willis-Overland Co., Toledo, Ohio.....	10
Oliver Chilled Plow Works, South Bend, Ind.....	9
Pittsburgh Plate Glass Co., Pittsburgh, Pa.....	9
Crane Co., Chicago.....	7
General Electric Co., Schenectady, N. Y.....	7

PERHAPS they first read our Booklet and decided to try one, anyway. The performance of that one was an eye-opener—and they reordered of course.

When you realize the exceptional efficiency of the "Rarefied" and the saving in power and repairs it assures you, you will not hesitate to send us your order.



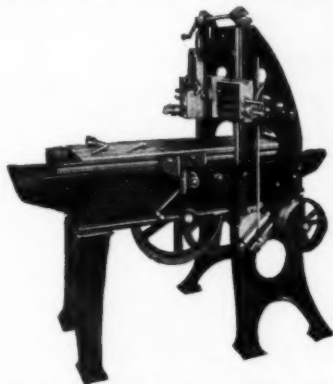
*To help you understand the merits of this modern dust collector we would like to send you a copy of that Booklet. Let's have your address*

## The Knickerbocker Co.

Jackson, Mich.

# The Lee Planer

Means Lower Costs on Small Work



Made in Sizes 16x16x42" and 16x16x54"

It is a waste of time and equipment to handle light work on a small planer, while the "Lee," because of its greater ease of handling, will do your small planing with greater efficiency and economy. It saves overhead, labor, time and space.

Equally adapted to the manufacture of small work in quantities, and for saving time and costs on those jobs in the tool room that are too large for the shaper and too small for economical handling on the large planer.

*A Big Machine in All but Size*

*Full information freely at your service*

**The Frank H. Lee Co.**

MACHINERY DIVISION

**Danbury, Conn., U. S. A.**

## Need A Good Metal Cutter?

The New "Gray" Can't Be Beat



**Cuts All Kinds  
Of Sheet Metal**

Respective capacities of Nos. 0, 1, 2 & 3:

18"	throat,	1/8"	plate
34"	"	3/16"	"
36"	"	3/8"	"
36"	"	5/8"	"

Has an unlimited scope of work. Accomplishes such tasks as cutting out stripping plates for die work, blanks for irregular forming shapes, jigs, engine liners, etc. Will start to take out a kerf anywhere on sheet. No buckling or springing. Takes sheets up to  $\frac{3}{8}$ ".

*Better write for full details*

**W. J. SAVAGE CO., Knoxville, Tenn.**

## A 100 per cent Investment in 30 Days

And the Saving is ALL "Velvet" Thereafter

*Peter Bros. Abrasive Metal Cutter often pays for itself within the first month.* It will enable your tool makers to do work easier, better, quicker, and 75% cheaper. It has no equal for cutting high-speed and other hardening steels. No better cutter can be found.

**8" Size \$22.50, with C. S.**

Splendid for tool room. Cuts high-speed steel up to  $\frac{1}{4}$ " square.

**12" Size \$60, with C. S.**

Cuts up to  $\frac{3}{4}$ " diameter, round or square, at any angle up to 45 degrees. Ball bearing.

**15 Days' Free Trial**

Write us or ask your dealer

**PETER BROTHERS MFG. CO.**  
115 Railroad St., Algonquin, Ill.

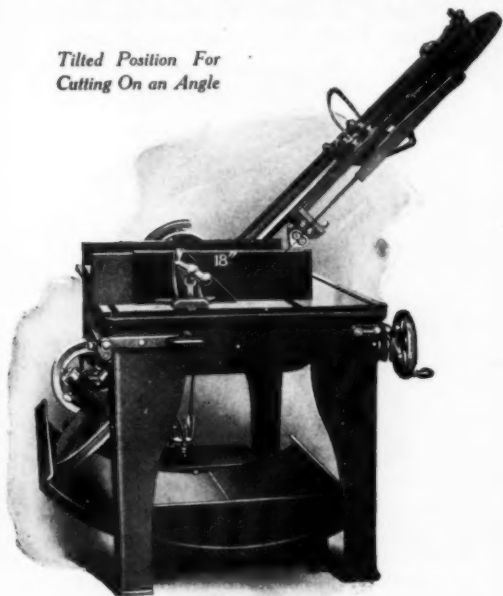




# MARVEL Metal Band Saw No. 8

Blade Tilts 45 Degrees To Right or Left

*Tilted Position For  
Cutting On an Angle*



A UNIVERSAL METAL CUTTING band saw of unusual design and completeness. It has exceptional ease of operation, wide range and great capacity. The special feature of the tilting blade allows sawing at any angle up to 45 degrees while work is held stationary in vise. Saw blade is mounted on two flanged wheels supported by a very rigid frame which is pivotally carried on a frame under table. Capacity of throat: depth 18 in.; height 20 in.; at 45 degrees the height is 14 in.

*Wouldn't you like to know more of the details? Write to*

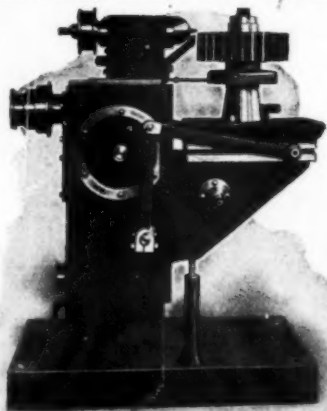
**Armstrong-Blum Mfg. Co.**

**341 N. Francisco Ave.,**

**Chicago, Ill.**

# Rounds 24 Teeth a Minute

Cross Gear Tooth Rounding Machine  
Makes Every Tooth a Perfect Half Circle



We guarantee the above production. Every tooth must come a perfect half round from tip to root, and of any pitch from 20 to 6/8.

The "Cross" handles gears of any number of teeth from 8 to 250, including all prime numbers.

It successfully rounds tank and tractor gears on a production basis. The speed and accuracy of the "Cross" insures rock-bottom manufacturing costs at all times.

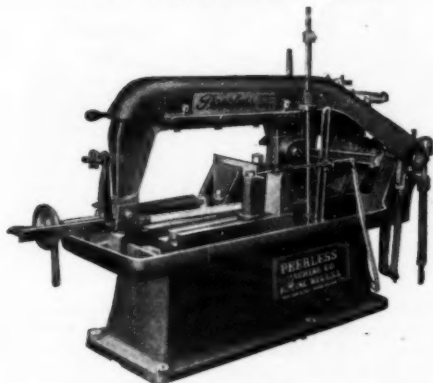
*Self-interest dictates that you look into above facts*

**Cross Gear & Engine Company**  
Detroit, Michigan

Patented here and abroad; sold ONLY by us

# *Peerless* **HIGH SPEED**

**The Machine With  
The Balanced Lift**



One of the Peerless improvements is the balanced lift, which automatically raises the blade for the return stroke. This economizes power and frees the teeth from strain and wear, greatly prolonging the life of blades and materially adding to the effectiveness of the machine. The ability of the Peerless to do more cutting, at less expense for operation and upkeep, is what is bringing so many repeat orders.

The records the Peerless has established and the preferences it has won, purely on its merits, make it the logical tool for you whenever you want more cutting capacity or more economical cutting.

Furnished with or without our Six-Speed Gear Box, which further increases output and saves blades if you cut both hard and soft steel; also with or without motor.

*Write for complete description and our 30-DAY TRIAL OFFER*

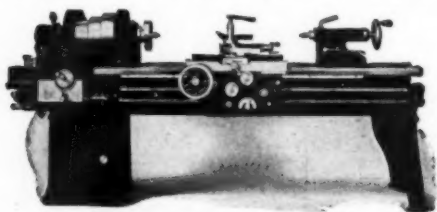
**Peerless Machine Company**

1609 Racine Street,

**RACINE, WISCONSIN**

# Boye & Emmes Instantaneous Change Gear 18" Engine Lathe

Double Back Geared—Double Plate Apron



Any pitch or feed shown in the Index below is instantly obtainable without the removal of a gear.

The Boye & Emmes 18" has a reverse in the head for screw cutting, reverse in the apron for feeds, power cross feeds, etc. The longitudinal and cross feeds cannot be engaged when cutting screws.

This sturdy, powerful, accurate lathe is designed for great flexibility and ease of operation, constructed of the best materials obtainable, and most carefully finished. We invite the closest inspection.

## INDEX

Front Index Handle in Hole				1	2	3	4	5	6	7	8
Top Index Handle in Hole, 1	2	Cuts Threads per in.		2	2½	2½	2¾	2¾	3	3½	3½
" " " " 2	4	" " " "		4	4½	5	5½	5½	6	6½	7
" " " " 3	8	" " " "		8	9	10	11	11½	12	13	14
" " " " 4	16	" " " "		16	18	20	22	23	24	26	28
" " " " 5	32	" " " "		32	36	40	44	46	48	52	56

Feeds 4 Times Threads per Inch *W.T. Emmes pat., Aug. 26, 1902, Oct. 28, 1902*

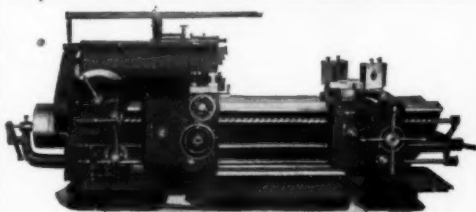
## The Boye & Emmes Machine Tool Co.

2245-2251 Spring Grove Ave., Cincinnati, Ohio

# STEINLE TURRET MACHINE CO.

## MADISON, WISCONSIN

Originators of the Heavy Duty Full Swing Side Carriage Turret Lathe



**Steinle 24" Full Swing Side Carriage Turret Lathe**

Machine is regularly furnished belt driven or arranged for motor drive.

Actual swing over ways.....	24"
Swing over side carriage.....	21"
Diameter of hole through spindle.....	4" or 6 1/4"
Traverse of side carriage and of turret carriage .....	56"

Both carriages have independent quick change feed and independent power traverse all controlled from carriage aprons.

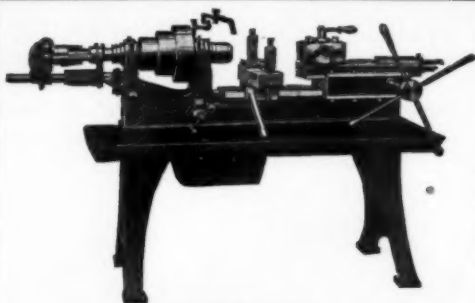
Side carriage can be run past the chuck and is equipped with cross slide having power cross feed and with turret tool block having four tool holders.

There are thirty reversible spindle speeds available. One belt or one motor furnishes power for all functions of the machine.

Turret is massive and designed particularly with a view to rigid support of tool equipment.

Send us drawings of fly wheels, pistons, piston rings, gear blanks of all descriptions, hubs, and other similar parts so that we may give you production estimates and recommendations covering prices and nature of tooling equipment for their rapid, accurate, and economical production.

Numerous repeat orders received from many of the principal manufacturers of tractors, trucks, aviation motors, marine gas engines, and stationary engines demonstrate the satisfactory results obtained from the use of our machines.



**MODEL "D"**

## **Turret Lathes and Screw Machines**

**Now Ready for Delivery**

**Designed for Rapid Manufacturing of  
Parts Requiring Several Operations**

### **MADE IN FOUR SIZES:**

- No. 2 {  $1\frac{1}{8}$ " Wire Feed Capacity, Plain Head  
          {  $1\frac{1}{8}$ " Hole Through Spindle.
- No. 3 {  $1\frac{3}{8}$ " Wire Feed Capacity, Plain Head  
          {  $1\frac{3}{8}$ " Hole Through Spindle.
- No. 4 {  $1\frac{3}{4}$ " Wire Feed Capacity, Geared Head  
          {  $2\frac{1}{8}$ " Hole Through Spindle.
- No. 5 {  $1\frac{7}{8}$ " Wire Feed Capacity, Geared Head  
          {  $2\frac{3}{8}$ " Hole Through Spindle.

**With or Without Power Feed to Turret Slide.  
Mechanically Perfect and Fully Guaranteed.**

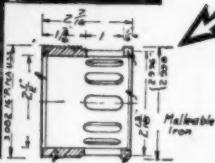
**Manufactured By**

**Smurr & Kamen Company**

**328-330 N. Albany Ave., Chicago, Ill.**

## A CLEAR TRACK THE STOCK

*This Job Complete in  
2 1/2 Minutes*



**are accurate and productive. Fifteen years' of thoroughly tested service. A size for every class of manufacturing.**

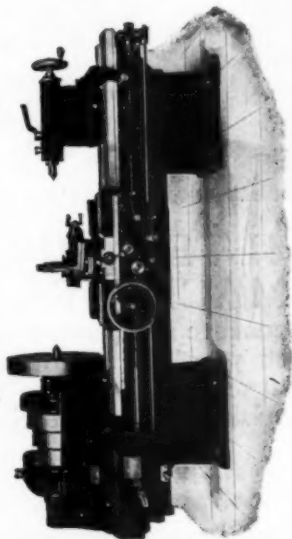
### Ask the User

## Catalog "H"—Its Free

WOOD TURRET MACHINE CO.

**BRAZIL INDIANA U.S.A.**

# SIDNEY LATHES—For All Requirements



The Sidney Line of medium and heavy duty lathes includes a lathe for every class of work, regardless of the size or type of shop you are running.

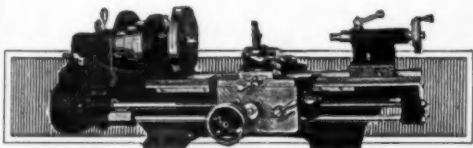
Lathes of medium duty in 14, 16, 18 and 20-inch swings, and of heavy duty in 15, 17, 19, 25, 27, 30 and 36-inch swings.

*Send for Bulletin No. 45.*

**THE SIDNEY MACHINE TOOL CO., Sidney, Ohio**



# "ADVANCING"



TYPE B-6 LATHES will be ready for delivery December 1st 1919. Ask about them.

During the past few years we have heard the word "RETREATING" so many times used, that when the cables or wireless flashed the word "ADVANCING" we all felt there was something good in store for us.

Yes ?



*This Photograph shows*  
**HUBERT DALTON PECK**

"ADVANCING"

with a shovel removing the first earth for the new and permanent home of the

"DALTON SIX" Type B-4  
and  
"DALTON SIX" Type B-6  
LATHES.

at Sound Beach, Connecticut,  
U. S. A.

**DALTON MANUFACTURING CORP.** *New York City, U.S.A.*  
After February 1st 1920, Sound Beach, Connecticut, U.S.A.

# Carroll-Jamieson 14" Quick Change Gear Lathe



Actual Swing, 15 $\frac{1}{4}$ "  
Has 32 Changes of Feed  
without removing a gear

## Guaranteed

To meet every requirement for the most accurate tool room work, and to manufacture parts to the full capacity of a 14" lathe.

Cuts from 3 to 64 threads per inch—one handle and knob does it all.

Furnished with either single or double back gear. Especially designed for maximum accuracy. Price moderate for the quantity and quality of its output.

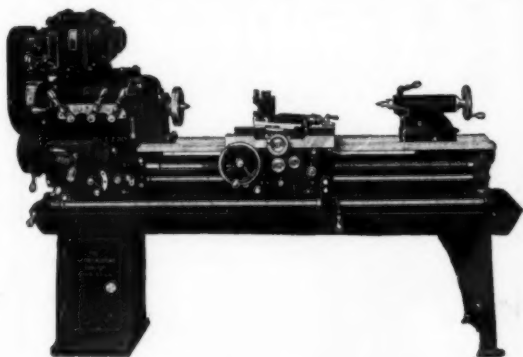
*Write for specifications of this modern lathe*

**THE CARROLL-JAMIESON MACHINE TOOL CO.,**

**Batavia, Ohio**

# Willard Mattman Bratten Lathe Is Superior for the Tool Room

High Power—All Geared Head—Quick Change



AS A PRACTICAL MECHANIC you will be interested to know something about Willard features—there is room to mention only a few.

The Headstock is a full box section, internally ribbed and fully self-contained, with selective speed changes inside the headstock. Six speeds are available when clutch is thrown in, and six more thru the back gears—12 in all. All gears are chrome nickel steel and all sliding gears are hardened. All shafts in the head are equipped with SKF ball bearings.

It's impossible to throw in two speeds at one time.

The Spindle is chrome nickel steel, forged and bored from the solid, and guaranteed interchangeable, with phosphor bronze bearings.

Operators take pleasure in running this high-grade tool, and those responsible for results find ample cause for satisfaction. We build them in all styles, and we shall be glad to mail you full descriptions.

## The Willard Machine Tool Co., Inc.

F Street, Box 784

CINCINNATI, O., U. S. A.

# Monarch Lathes

give universal satisfaction to the user. They have been doing this for years, and this accounts for the ever increasing demand for **Monarch Lathes**. Built in all styles and with any attachments desired.

**Sizes 10 to 30-inch Swing**

*Sold by a leading Machinery Dealer in every machinery center.*

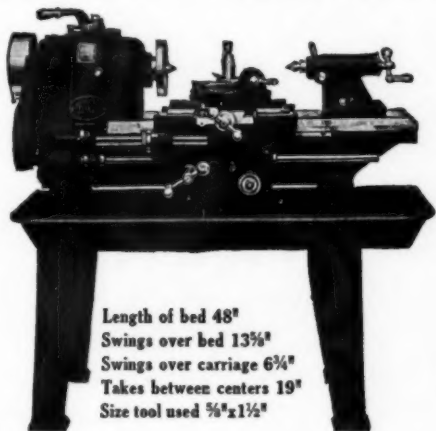


**The Monarch Machine Tool Co., Sidney, Ohio**

## SHORT LATHES

### FOR PRODUCING SHORT PARTS

The Adams Short-Cut Lathe is a specialized tool for the quantity production of short duplicate parts with the greatest possible economy.



Length of bed 48"  
Swings over bed 13½"  
Swings over carriage 6¾"  
Takes between centers 19"  
Size tool used ⅝" x 1½"

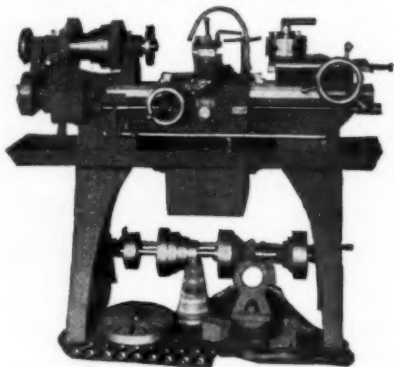
### The Adams Short-Cut Lathe

It is the most satisfactory in every way for the rapid production of short duplicate parts, while releasing the larger lathes for larger work. It costs less for installation, upkeep and operation, and is manipulated more easily, quickly and economically for work within its range. It is simple, rugged, powerful and flexible in operation.

*Put it up to us to make good on YOUR work*

**O. R. Adams Manufacturing Co., Inc.**  
**Rochester, N. Y.**

**Tool Room Lathes**  
**Worcester 12 and 14 Inch**  
**Manufacturing Lathes**



**Worcester 12"x4' Manufacturing Lathe**

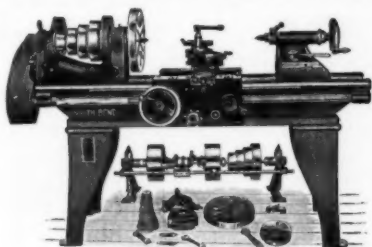
The picture shows full equipment except tail-stock, which is usually furnished. Can be furnished with cone head as shown, or with geared head for motor drive or single pulley drive.

We have separate handsomely illustrated folders, entitled "Tool Room and Manufacturing Lathes" "Geared Head Lathes" and "Cone Drive Lathes"—12 and 14 inch. Every "Worcester" is complete in itself and embodies the highest type of lathe construction.

*The lathes for practical service. Folders?*

**Worcester Lathe Company**  
**68 Prescott St., Worcester, Mass.**

# South Bend Lathe



Made with straight or gap bed.  
Price includes equipment as shown in illustration

## For the Machine and Repair Shops

13" Lathe....	\$385.00	18" Lathe....	\$ 735.00
15" Lathe....	483.00	21" Lathe....	900.00
16" Lathe....	550.00	24" Lathe....	1250.00

With Beds from 4 ft. to 16 ft. in length.

South Bend Lathes have been on the  
market 14 years. Over 22,000 in use.

New York Office: - 2½ Murray Street  
Boston Office: - - 65 Oliver Street  
Philadelphia Office: - 33 N. Seventh St.

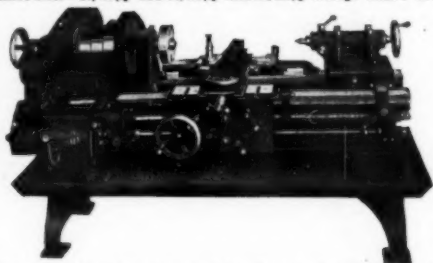
*Free catalogue mailed on request*

**South Bend Lathe Works**

Established 1906      South Bend, Ind.      430 E. Madison

## **"LEHMANN LATHES"**

Three Sizes—16/18¼" and 18/20¼" and 22/24¾" Swing. Beds 7' to 17'



These are strictly high-grade engine lathes of superior design and thoroughly good workmanship and material. Built for accuracy and production.

*Write for complete specifications and details. Do it today—NOW.*

**LEHMANN MACHINE CO., 608 S. Broadway, ST. LOUIS, U. S. A.**

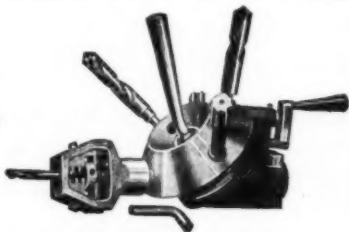
**The Newman 5-Hole Tail Stock Turret  
Will Enable You to Use Your**

## **Engine Lathes For Turret Work**

**Will fit  
any lathe**

**Attach in  
15 seconds**

**Sent on  
10 days'  
trial**

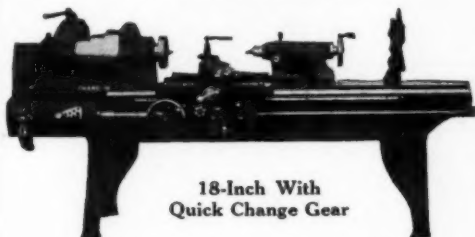


*It soon pays for itself. Why not put it to the test?  
When you write, state outside diameter of tailstock spindle*

**NEWMAN MANUFACTURING CO., Cincinnati, O.**



## The description of the "CHARD" is a story of super-quality



18-Inch With  
Quick Change Gear

Made in sizes 16", 18", 20", 24" and 28"

Next to using a lathe—which is the one best test—the next best method is to study carefully its design and construction. When you read in our folders the details of how the "Chard" is built, you will want to be a "Chard" user—not because of any frills, but because of a practical mechanical excellence that means heavy cuts, stiffness, accuracy, convenience and flexibility. It is the result of over 35 years of intensive study in lathe building.

*To know the "Chard" is to want it  
On what sizes shall we send information?*

## Chard Lathe Company Newcastle, Ind.

### DOMESTIC DISTRIBUTORS

THE F. O. STALLMAN SUPPLY CO., San Francisco, Cal.  
VONNEGUT MACHINERY CO., Indianapolis, Ind.  
ENGLISH & MILLER MACHINERY CO., Detroit, Mich.  
OGDEN R. ADAMS, Rochester, N. Y.  
THE W. M. PATTISON SUPPLY CO., Cleveland, Ohio.  
J. S. MILLER MACHINERY CO., Pittsburgh, Pa.  
MONARCH MACHINERY CO., Philadelphia, Pa.  
DALE-BREWSTER CO., Chicago and New York.  
THE BIGGS-WATTERSON CO., Dayton, Ohio.

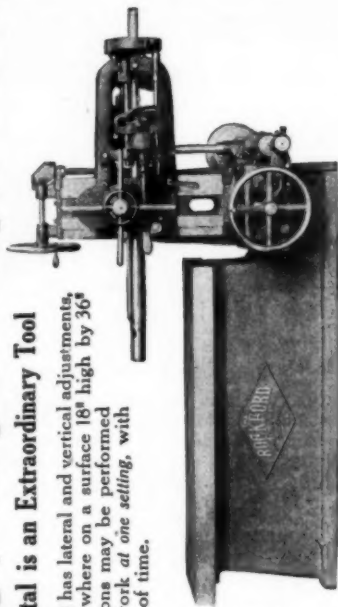
# Handles Large, Irregular Shaped Pieces

The Rockford Horizontal is an Extraordinary Tool

The head of this versatile tool has lateral and vertical adjustments, and the spindle operates anywhere on a surface 18" high by 36" wide. A number of operations may be performed on heavy and odd shaped work *at one setting*, with great accuracy and economy of time.

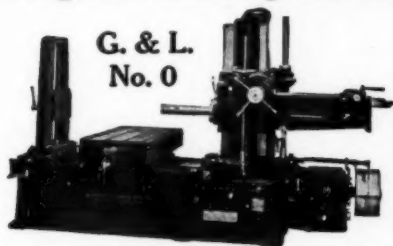
The Rockford puts increased production within your reach. It drives high speed drills up to 2" and bores up to 6" or over, according to the feed used. Has the accuracy for the finest tool and jig work, and ample power for the difficult tasks. A choice of six driving combinations.

Write for the  
specifications



THE ROCKFORD DRILLING MACHINE CO., ROCKFORD, ILL.

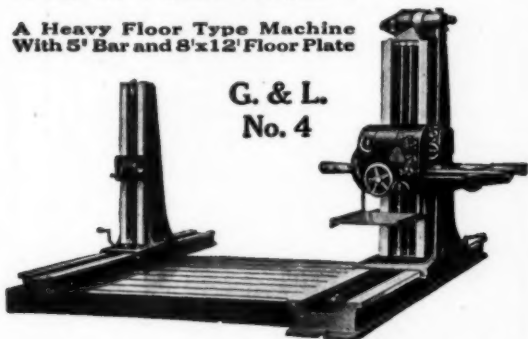
# G. & L. Horizontal Boring Drilling and Milling Machines



**G. & L.  
No. 0**

You will like the specifications of this rigid, self-contained tool, with direct drive, centralized control, superior accuracy and capacity, and great ease of operation.

**A Heavy Floor Type Machine  
With 5' Bar and 8'x12' Floor Plate**



**G. & L.  
No. 4**

This giant tool makes easy work of such pieces whose shape and size make their handling impossible on an ordinary machine. With necessary fixtures, if work permits, it will machine five sides of a casting at one setting. The solid build eliminates vibration.

*Let us send Circulars of these interesting economy tools*

**Giddings & Lewis Mfg. Co., Fond du Lac, Wis.**

# Bores Out a Cylinder 48-in. Long at One Setting

## Combines Power, Rigidity and Convenience



The No. 2 "Barrett" horizontal cylinder boring machine is of unusual efficiency and capacity. The patented quick change mechanism provides 10 different feeds.

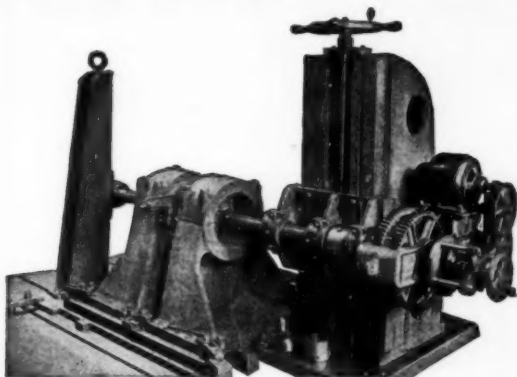
The bed is 13 ft. 1 in. long—widened portion 48 in. wide by 56 in. long, and 18 in. high. The boring bar is 5 in. in diameter, with a continuous travel of 48 in. in either direction. We recommend the use of a 10 h. p., variable speed, 4 to 1 motor.

*We invite you to write us about this and other up-to-date machines*

**BARRETT MACHINE TOOL COMPANY, - - Meadville, Pa.**

Builders of all sizes of Single and Double Bar Horizontal Cylinder Boring Machines for boring and facing simultaneously steam, gas, gasoline, pump and locomotive cylinders, also for boring the guides of engine frames and facing off end, besides boring and facing the crank shaft bearings simultaneously.

# Here It Is!



## Pedrick Column Boring Machine

A new machine, extremely simple but capable of lots of work. In fact, with the two methods of operating the boring bar it possesses certain advantages not otherwise obtainable. (1) The boring bar travels or (2) a cutterhead feeds along the bar. The same mechanism does it all, the change being made almost instantly.

*Write for a circular and get the whole story*

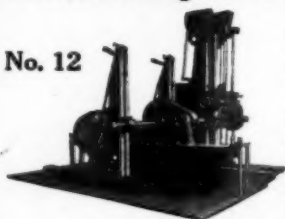
## Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Builders of Portable Boring Bars, Crank Pin  
Machines, Pipe Benders, etc.

## P. & H. Drilling and Boring Machine

No. 12



1. Rapid traverse in each direction can readily be manipulated by slight adjustments on the hand wheel.

2. The spindle speeds are obtained by quick change gears and variable speed motor for either A. C. or D. C. current resulting in the following speed variations:

A. C. Current, 12 to 542 R. P. M.

D. C. Current, 10 to 445 R. P. M.

3. The four changes of feed available for each speed are made by the operator without leaving his position near front end of spindle.

**Pawling & Harnischfeger Company**

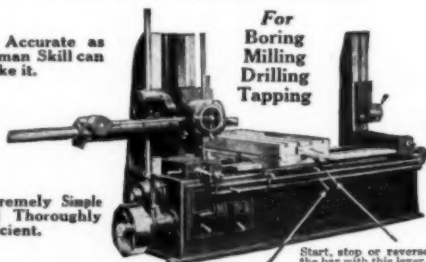
Milwaukee, Wisconsin

## The LAMBERT—

Horizontal Boring Machine

As Accurate as  
Human Skill can  
Make it.

For  
Boring  
Milling  
Drilling  
Tapping



Extremely Simple  
and Thoroughly  
Efficient.

Start, stop or reverse  
any feed with this lever

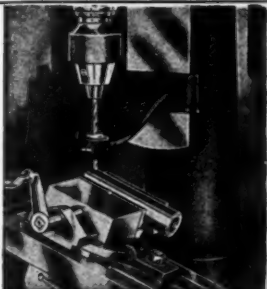
Start, stop or reverse  
the bar with this lever.

**The Lambert Machine & Engineering Company**

Cleveland, Ohio, U. S. A.

**You waste no  
time getting  
the exact  
angle** —————→

The tilting table,  
with accurate  
graduations in de-  
grees, always  
helps to speed up  
the work.



## **To Speed Up Your Machining**

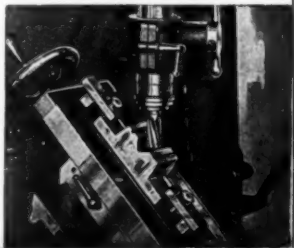
you must have a machine that has greater convenience—quicker adaptation to the work in hand. No matter how difficult the particular job may be, there's always a way with the Knight Milling and Drilling Machine.

It saves time in the shop, tool room and experimental department; on dies, tools, jigs and metal patterns. Built in three sizes—large, medium and small. Send for illustrated folder.

### **W. B. Knight Machinery Co.**

3920 W. Pine Blvd., St. Louis, Mo.

*They mill, bore  
and drill at  
any angle with  
only one set-  
ting of the  
work.*



## A Lot of Drilling Capacity

This 16-inch, No. 7 Drill is a sturdy, reliable, highly efficient sensitive that will give you more service and satisfaction than you have ever bought for so small a sum. Takes drills up to  $\frac{3}{4}$ -inch, and handles them effectively. It gets results.

*Let us have your address for complete description.*

**Francis Reed Co., 43 Hammond St., Worcester, Mass.**



## A Heavier Drill The Hoosier 20"

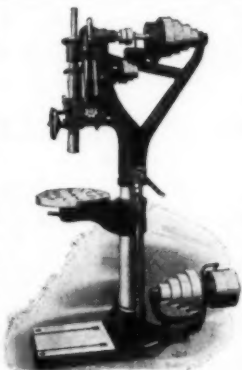
With stationary head, back gear, power feed and automatic stop, and with an exceptionally wide range of speeds and feeds.

It is unusually strong and rigid, and 100 to 150 lbs. heavier than the ordinary 20" drill.

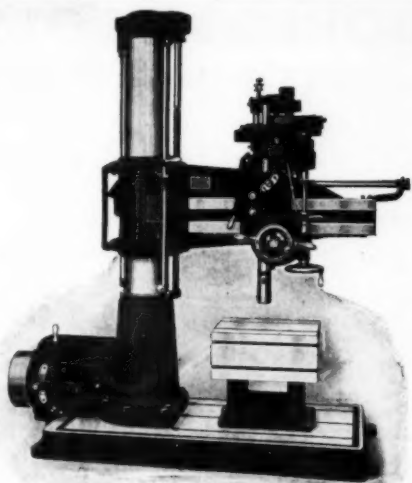
Special care is given to every essential detail, such as alignment of spindle, fitting of gears, etc., to insure a drilling machine of the highest grade.

*Write for specifications*

**HOOSIER DRILLING MACHINE CO., Goshen, Ind.**







## It Has Made Good

Interest yourself in a radial drill that is looked upon by discriminating buyers as a real up-to-the-minute outfit.

## Mueller Radial Drills

Are constructed so the operator can control them without undue exertion. It is unnecessary for him to move away from his natural position in front of the drill. The extraordinary rigidity of the machine is acknowledged and this means the work turned out on a MUELLER is highly accurate. Do you want to learn something about this distinctive radial drill?

Manufactured By

**The Mueller Machine Tool Company**

ESTABLISHED 1902

Radial Drills and Lathes.

CINCINNATI, O.

# BORING TOOLS

*9 Bars of 1 type; 11 Holders of 5 types.*

One-Piece Tools Predominate.

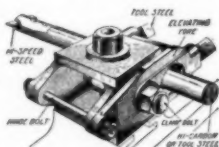
Heavy Holders and Double King Bolts in evidence.

Large Mac-it Screws used exclusively.

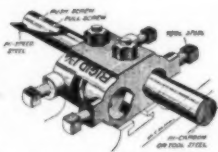
*Large stock on hand. Shipped on 30 days' approval.*



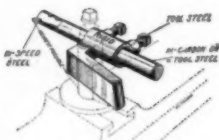
The Rigid Boring Bar



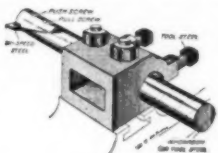
Adjustable Boring Tool



Double Reversible Boring Tool



Short Hold Boring Tool



Single Reversible Boring Tool

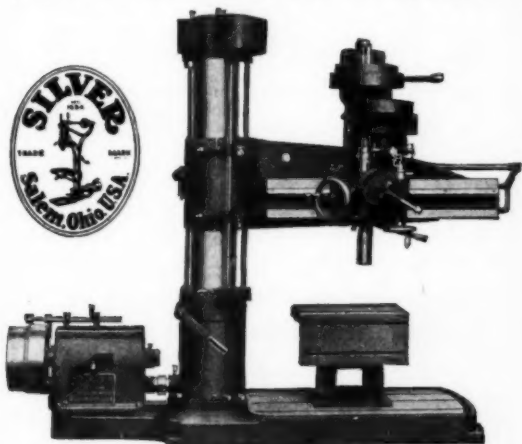
*See Dealer, or Address—*

**RIGID** Tool Holder Co.  
Washington, D. C.

---

# THE NEW LINE OF SILVER RADIALS

Built in 2½, 3 and 3½ Foot Sizes



SILVER RADIALS have many exclusive features, suggested by our experience of over 65 years in building drilling machines, with four years of experimental work, exhaustive tests and investigation into the possibilities of radial drill improvement—features which make for simplicity, ruggedness, ease of manipulation, safety and a maximum output. These are all explained in our descriptive folder, which we want you to have.

*Will you write for your copy?*

**The Silver Manufacturing Co.**

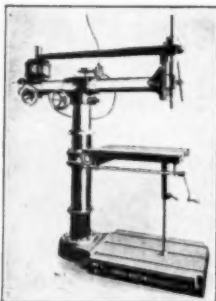
Box 295, Salem, Ohio, U. S. A.      Founded 1854

LONDON PARIS BRUSSELS NEW YORK GENOA SIDNEY CAPE TOWN

*Silver radials made by the builders of the famous Silver line of 20 and 25" drills*

---

# HAWES Radial Drill



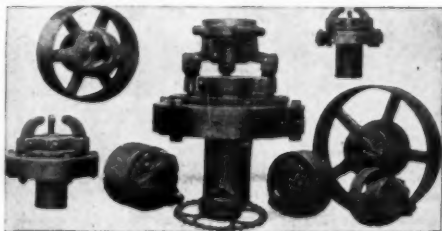
We manufacture both wheel and belt polishing machines; Semi - Automatic polishing and grinding machines; Emery grinders, 10 in. to 10 ft. center to center of wheels; Gang Drills.

We manufacture machines in both belt and motor driven type.

*Write for Bulletin No. 10*

**C. L. HAWES, Ashtabula, Ohio, U. S. A.**

**Refer your clutch problems to us  
Solving them is our business**



*Special Clutches — a specialty  
Catalogue cheerfully sent on request.*

**National Clutch Company**  
1859 Fulton St., Chicago, Ill.

**For Speedier Light Drilling  
and Tapping**

# **Hammond High-Speed Sensitive Radial Drills**

*Write and find out how you can cut your  
light drilling and tapping costs 25% to 33%*



**The Hammond Mfg. Co**  
Cleveland, Ohio

# THREE To ONE



A golden opportunity  
to increase production  
in your shop.

## Sellew Adjustable \*\*\* Drill Head \*\*\*

means the economy of  
drilling three holes at a  
time instead of one.

We also make Special  
Drill Heads with fixed  
spindles.

*What do you think?*



**SELLEW MACHINE TOOL CO.,**

Pawtucket,  
Rhode Island



## "Buhr" Drill Heads

Adjustable and Fixed Center

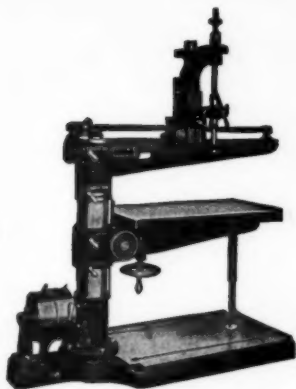
**All-Ball-Bearing**

Adjustable from 2 to 12  
spindles.

Fixed center, any number  
of spindles.

We guarantee our Heads  
to stand up to capacity.

**Nelson-Blanck Mfg. Company**  
Detroit, Mich.



## This Taylor & Fenn 3-Foot Radial Drills Holes and Cuts Costs

If you have drilling to do up to  $\frac{3}{4}$  in. in big, hard-to-handle pieces, this exceptionally handy machine can save you money. Its wide range and quick action, its convenience of adjustment, its dependable accuracy, and its low consumption of power all combine to make it a tool that lowers manufacturing costs.

We could not say beforehand just how much it would save on your work, but we do know that in some shops it has doubled and even trebled previous outputs.

*Ask us to mail you our production records  
and cost comparisons—all interesting data*

**The Taylor & Fenn Company**  
Hartford, Conn.

## Minster Jr. Drill

### Capable of Heavy Boring

A tool of simple and rugged construction, which is particularly profitable in large production shops.

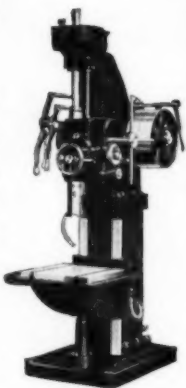
It has 6 speed and 4 feed changes, but any desired speeds and feeds may be obtained by changing gears. This, with its capacity for heavy boring, enables it to cover an unusual range of work.

The speed transmission gears run in a constant bath of oil. Ball bearings throughout insure quiet running. Tapping attachment, compound table and adjustable motor base if desired.

*Write for Bulletin No. 30*

MACHINE TOOL DEPT.

**Minster Machine Co.**  
Minster, Ohio



## For Cutting Costs---

### "Demco" No. 40

## Drilling, Milling and Tapping Machine

Has a reverse drilling capacity of  $\frac{3}{8}$ " and tapping capacity of  $\frac{3}{8}$ ". Has four back geared speeds, right or left. There is a cone friction clutch engagement for tapping and reversing. It is equipped with vertical drive shaft with bevel gears running in grease.

Its special adaptation is tool-room work, such as making dies, taps, jigs, etc.

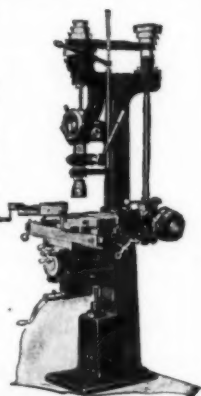
*Why not write us now?*

**The Demco Machine Tool Co.**

*Successors to*

**The DeMooy Machine Co.**

706 Frankfort St., N.W. Cleveland, O.



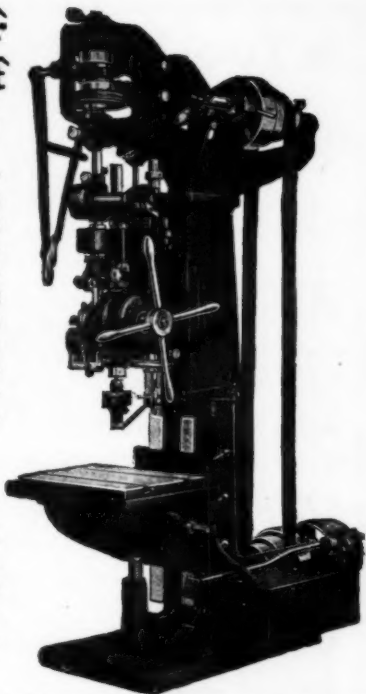


# Turner Turret Economy

is immediately apparent when you consider that *a series of operations are completed* without shifting position of the work or changing the tools. The rotation of the Turret is

## Automatic

When operator returns spindle to its full height, it automatically indexes to the next spindle.



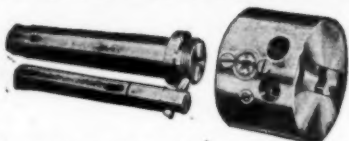
There is an extremely wide range of speeds by means of minor gear changes; speeds may be different for each spindle, and all may be easily changed, to meet special conditions of stock or tools. If you want to reduce costs, increase output and improve quality, use a Turner Turret. Send for Bulletin FH and mail us a sketch of your work.

*Builders of QUINT TURRET. Ask for Bulletin QH*

# TURNER TURRET

**Turner Machine Company**  
DANBURY, CONN. and Newark, N. J.  
Incorporated with Turner, Atherton & Co., Ltd.,  
Denton, Manchester and Stockport, Eng.

## A Tool You Need—



### Flynn Combination Drill and Micrometer Boring Head

Unexcelled for use on horizontal boring or milling machines, in connection with jig and fixture or experimental work. By eliminating mistakes, this tool saves not only time but material as well, and also tends to give your shop greater efficiency.

Head runs concentric and has no projections to interfere in reaching small places. Adjustable to 1000's of an inch. Limit of drills, 0 to  $\frac{3}{4}$ " ; boring bar,  $\frac{3}{4}$ " x  $5\frac{1}{2}$ ". Write for details.

**J. M. WATERSTON,** 78 Woodward Ave.  
DETROIT, MICH.

## Offset Drilling Attachment

### A Size for Every Drill Press



*They reach where nothing else can, and do efficient work. Made in standard forms, or modified on short notice to fit your needs.*

*We have been behind on orders, because automobile, traction, truck and aeroplane makers were taking them faster than we could make them. But we have enlarged this department and can now meet the demand.*

*Write for the illustrated Folder O. K.*

**The H. E. Harris Engineering Co.**  
Bridgeport, Conn.



**It Pays to  
Specialize**

**SPEED  
12,000  
R. P. M.**

**No Vibration  
No Heating**

***Ask for full  
Information***

**Our  
No. 1/2**

***Avey***

**BALL BEARING  
DRILLING Machine**

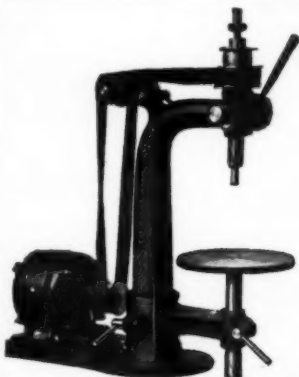
is specially designed for very  
light drilling where speed is  
the essential rather than power.

**Eliminates Twist Drill  
Breakage**

because the drill cuts so fast that  
feed pressure does not break it.

**The Cincinnati Pulley Machinery Company**

**Cincinnati, Ohio**



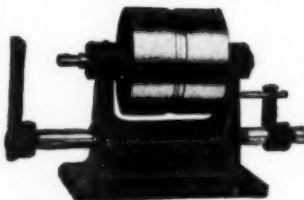
## Burke 10" Bench Drill Motor Driven

Extremely accurate, very sensitive and of *Burke Quality*. Has double flanged top cone mounted on large bearing through which spindle runs. Spindle thrust taken on a ball bearing. Furnished with a. c. or d. c. General Electric Motor. Also belt driven.

The Burke Machine Tool Co., **Conneaut, Ohio**

## Burke Tapping Machine

Another Tool of Burke Quality



Pin Clutch Drive  
1/4" capacity, \$20.

Friction Drive  

1/8"	capacity, \$20.
3/8"	" 35.
5/8"	" 50.

BUILT throughout with exceptional care, our several sizes give service in proportion. Accurate, rapid and convenient, they give solid satisfaction.

*Send for details today*

The Burke Machine Tool Co., **Conneaut, Ohio**

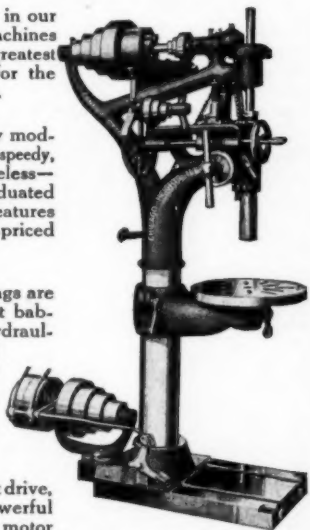
**Latest Improved 20-Inch**  
**Canedy-Otto Power Drills**  
**With Capacity for 1½" Holes**

We believe that in our 20" Drilling Machines we give the greatest possible value for the amount invested.

They are strictly modern tools—simple, speedy, accurate and noiseless—with all the graduated and automatic features found in high-priced drills.

The large bearings are made of the best bab-bitt metal, with hydraulically pressed sheet graphite cones, which increase their life 300 to 400 per cent.

Furnished for belt drive, or with a powerful direct-connected motor with all-spur-gear drive, also with our improved tapping attachment if desired.



*It's too good to be overlooked. Write for complete data.*

**Canedy-Otto Mfg. Company**  
**Chicago Heights, Ill.**

Manufacturers of Forges, Blowers, Drills, Lathes and Grinders

## Alert Boring and Facing Tool

High Speed Steel Blades



Made in Three Sizes

**Holes 6 Inches Deep** have been bored accurately in one cut. There's a reason. The Alert is used successfully on turret lathes, automatic screw machines and drill presses, for facing, counter-boring and radiusing where a fine finish is desired. Bores large holes where the cost of high-speed drills is prohibitive.

**You Will Like** our Ratchet Tap Wrenches, Roller Grip Arbors and Roller Grip Mandrels—all patented; also our High-Speed Solid Tap Wrenches and Hand Knurling Tool Holders.

*Write for descriptive circular "H"*

**Alert Tool Co.,** 237 N. 6th St.  
Philadelphia, Pa.

## Kwick Kutting, Accurate Tools

Madison Cutters for any Size Holes

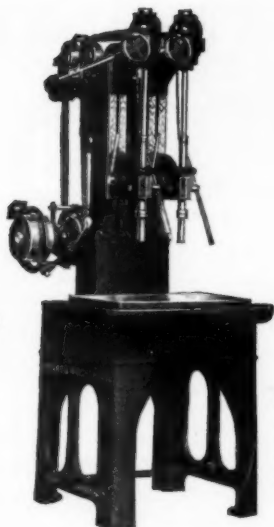


These cutters are made in 45 sizes—from  $1\frac{1}{4}$  to 5" diameter. They cut, without grinding, any size hole, and are quickly adjustable to .00025 inch. You can depend on it that **every hole will be exactly the size you want.** Satisfied users: Continental Motor Corp., Cadillac Motor Co., et al.

*You can get actual proof by experiment. Write to*

**MADISON MANUFACTURING CO., - Muskegon, Mich.**

*Tool Agents Wanted*



**With  
One  
to  
Eight  
Spindle**

**For  
¼-in.  
Drills  
and  
Smaller**

## **Sensitive Drilling Revolutionized**

**With Henry & Wright Drilling Machines  
And our Special Feed and Speed Chart**

Henry & Wright Drilling Machines have a gearless power transmission with frictionless bearings, which delivers the most power at the drill point. In connection with our Special Feed and Speed Chart, they have fairly revolutionized sensitive drilling

*Put us to the test. In what sizes are you interested?*

**The Henry & Wright Mfg. Co.**  
**760 Windsor St., Hartford, Conn.**

OVER-SEAS REPRESENTATIVE

**ALMACOA** **ALLIED MACHINERY COMPANY OF AMERICA** **ALMACOA**  
120 BROADWAY, NEW YORK, U.S.A.

*Principal Foreign Offices: Paris, Turin, Zurich, Barcelona*

# Model "E-50" Sensitive Bench Drill Press

This 2-speed, direct motor drive, high-speed ball bearing drill is especially designed to care for all work, ranging from the smallest to a  $\frac{1}{4}$ " hole.

Can be furnished with special pulleys to drive main spindle any speed up to 10,000 R. P. M.

Main spindle is heat treated and ground to size; it is guided through a quill with support at each end in an annular ball bearing.

End thrust is taken up by an end thrust ball bearing under feed arm.

A quick adjustable table has a working surface  $5\frac{1}{2}$ " x 5", and will take work up to  $4\frac{7}{8}$ " in height.

Surface of table is ground to insure accuracy.

Table has a self-cleaning taper, which keeps the precisely ground main column free from chips, and serves also as a guard to prevent injury to column.

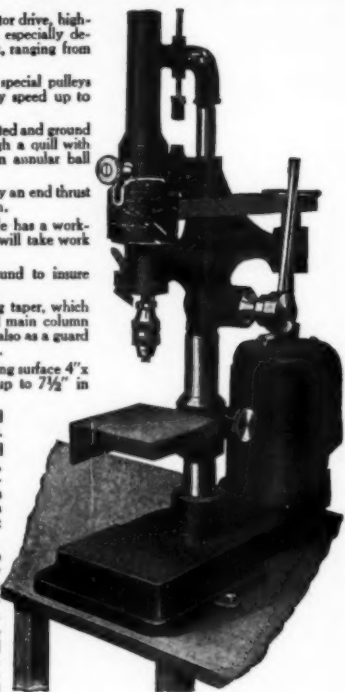
Base has a ground working surface 4" x 6", and will take work up to  $7\frac{1}{2}$ " in height.

Base has oil groove and self-cleaning column support.

Your attention is called to another special feature, which is a spindle lock enabling quick changes of drills without the operator's hands coming in contact with belt or pulleys.

An idler pulley takes up any belt stretch which may occur in the endless woven canvas belt, without impairing sensitiveness of machine.

Front pulley and upper part of spindle are guarded by a semi-tubular guard insuring safety. Machine may be operated either by hand or foot control.



Height over all.....24"  
Base..... $7\frac{1}{2}$ " x 18"  
Diameter of spindle..... $\frac{7}{16}$ "

Spindle feed..... $2\frac{1}{4}$ "  
Weight.....62 lbs.  
Will drill to center of a 6" circle

**The High Speed Hammer Co., Inc.**  
Dept. 14  
Rochester, N. Y.





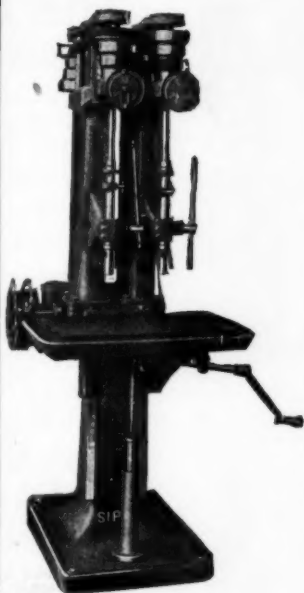
## FEATURES

**Quick  
Change Speed**  
Change in 2 seconds

**Most  
Efficient Drive**  
No belt troubles

**Safety First**  
All parts protected

**Heaviest  
Drill Made**  
Yet very sensitive  
**All Ball Bearings**



## The Spindle Runs True on The Sipp Quick-Change-Speed Drill

because of the absolute accuracy with which the spindle and its bearings are made and fitted, and because the spindle is driven by two opposite splines, hence cannot be forced out of alignment. It is very sensitive, too. *Write for details.*

**The Sipp Machine Company**  
**Keen Street, PATERSON, N. J.**



It's Portable

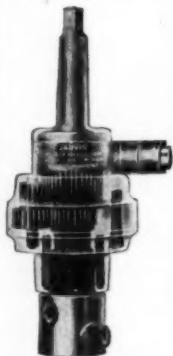
## The BARR Pneumatic Hammer

**Is used by the best people in the world!**

U. S. Navy—Many Large Ship Builders—  
American and Foreign Railways and Min-  
ing Companies—Automobile, Truck and  
Motor Mfrs.—Big Electrical Mfrs.—Or-  
namental Iron Works, Etc.

It is conceded one of the most profitably  
adaptable tools ever placed in shop or  
tool room! Equally useful in the field.

*If you do not know this excellent time saver,  
write today for Bulletin 10H.*



## Tapping Is Safe and Easy With the Jarvis High-Speed Tapping Device

Most tapping is unsafe—for the taps.  
Many break and the cost of them is an  
important item. Using the Jarvis High  
Speed, with ball drive and reverse, you  
cut out the tap-breakage while you do  
the work, easily and rapidly. It is an  
economy all around, and a satisfaction  
to you and to the man who does the  
tapping.

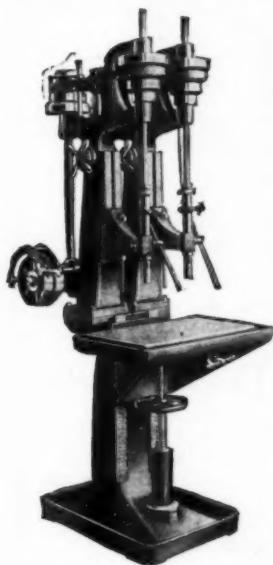
Let us send you more information,  
and a device for trial when you are  
satisfied you want that. We are glad  
to have it demonstrate itself under  
your own working conditions.

*A line will get us into action*

**THE CHARLES L. JARVIS COMPANY  
GILDERSLEEVE, CONN.**

A sensitive drilling machine with superior production boosting features—that's

## The Improved EDLUND



### *Reasons Why:—*

A straight endless belt is used in transmitting the power, thus eliminating the objectionable quarter turn.

Upper frame is built in one piece casting and all bearing surfaces are extra large which makes the machine extremely rigid.

The drive and cone pulleys are of large diameter, thus giving the machine an unusual amount of power. Equipped with SKF ball bearings thruout. Speed changes are made instantly from operator's position by simply shifting a handle a quarter turn.

Built with one to six spindles, and there are four spindle speeds of 510, 816, 1273 and 2038 r. p. m. with drive pulley running at 500.

*Send for circular and get better acquainted  
with this superior drilling machine*

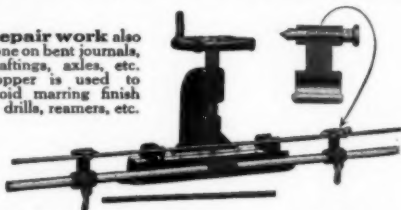
**Edlund Machinery Company, Inc.**

250-300 Huntington Ave., Cortland, N. Y., U. S. A.

## A Practical Straightening Press

The "Towsley" Puts Bar Stock in Perfect Alignment

**Repair work** also done on bent journals, shaftings, axles, etc. Copper is used to avoid marring finish of drills, reamers, etc.



The "Towsley" enables one man to remove bends and short kinks from rough bar stock before it is put in the lathe, obviating low spots where lathe would leave rough surfaces.

*Isn't this worth looking into?*

**JOHN T. TOWSLEY MFG. CO.,** 1037 Woodrow St.,  
CINCINNATI, OHIO

## Draw-in and Thrust Chucks

for Tool Room Lathes and Screw Machines. Look for the name "Hardinge Brothers" and write us. And did you ever ask us to make those—

### Screw Machine Collets

with regular or irregular holes? We are prepared to make good deliveries. Why not try us next time? Quantities never too small or too large to interest us.

*When making inquiry, kindly refer to "Chuck Department"*

**Hardinge Brothers, Inc.**  
Chicago, Ill.

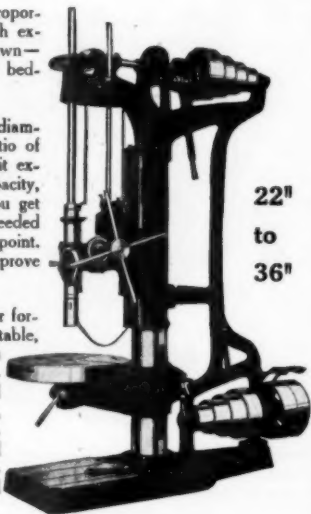
# For Maximum Production

## The Heavy Duty, High Speed "Aurora"

It's a sturdy, well proportioned machine with excellencies all its own—features that insure bed-rock economy.

The large pulley diameter and gearing ratio of the "Aurora" give it exceptional pulling capacity, and that means you get power where it's needed most—at the drill point. Production records prove our claims.

Should the operator forget to clamp the table, the large bearings will prevent its tilting. Worm wheel drops automatically, giving a positive release. Ample metal thruout gives the machine the desired rigidity.



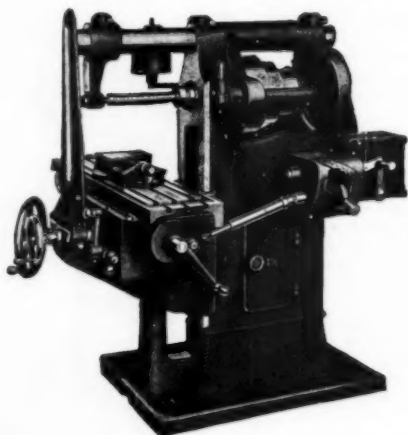
*A low overhead, in combination with modern manufacturing methods, enable us to make attractive prices, quality considered. Write us for full information.*

## The Aurora Tool Works

Aurora, Indiana, U. S. A.

# **AMERICAN** No. 1½ PLAIN **MILLER** BACK GEARED

**A Dependable Manufacturing Tool**



If you want a manufacturing miller that is quick and accurate—that does satisfactory work and lots of it—that keeps costs down to rock-bottom—you can find nothing better than the American No. 1½, illustrated above.

It has plenty of metal properly distributed to withstand all strains, with large bearings, accurate alignment, simple adjustments, and an adequate oiling system.

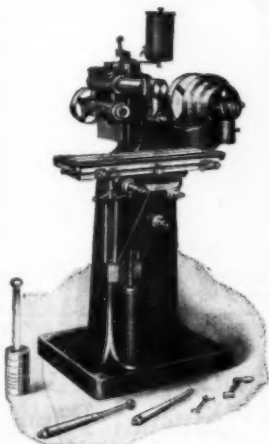
Furnished with Vertical Spindle Milling Attachment if desired.

*You will be interested in the complete description*

**The American Milling Machine Co.**

**Cincinnati, Ohio, U. S. A.**

## Hand and Weight Feed U. S. No. 1 Improved Miller



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*For*  
the faster and  
more economical milling of  
small machine  
parts

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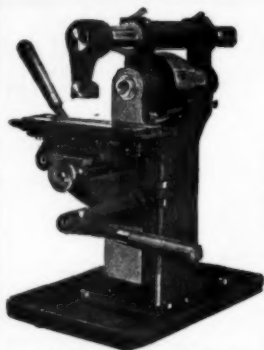
A machine of quick adaptability and wide range, with great power for its weight.

The vertical and horizontal feeds are independent and permit work being held close to table, so that it may be used as a profiler. The vertical lever feed being independent from the table and the head accurately counterbalanced, light milling work can be done on long or heavy pieces without danger of breaking cutters.

The descriptive circular shows why there are so many operations, especially in the milling of small parts, which can be done on this machine faster and more economically than on big, expensive millers.

*We shall appreciate the opportunity to explain. May we?*

**The United States Machine Tool Co.**  
Cincinnati, Ohio, U. S. A.



## Burke's No. 3 Bench Millers

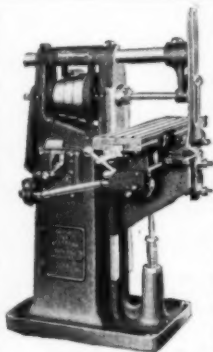
### Are Seasoned Tools

Our system of tests insures accuracy, and our methods of construction make it permanent. Frames and parts are carried 6 to 8 months, after work begins on them, before the completed tools receive our final O. K., and all parts are finished and fitted with exceptional care.

Longitudinal feed, 6 in.; traverse feed,  $3\frac{1}{4}$  in.; vertical motion of knee,  $8\frac{1}{2}$  in.; table surface,  $3\frac{1}{2} \times 12$  inch.

*Write for Catalog, which also shows larger and smaller sizes.*

**The Burke Machine Tool Co.**  
Conneaut, Ohio



## Davenport No. 2 - B Plain Miller Has Unusual Power

In fact, we believe you will be agreeably surprised at the number of unusual improvements we offer in this modern miller and the economy it affords.

Construction of arbor is original with us. It has a self-aligning ball bearing, which will stand any cut the machine will pull for a long time without perceptible wear. The 12 feeds are obtained thru quick change gear box. Gears in feed box are of special alloy steel.

*Circular gives full, interesting data*

**THE DAVENPORT MFG. CO., Meadville, Pa.**



# BECKER

The Machine that Gives the Smooth Finish



Model SD

## Superiority of Ranges

is a salient feature that has earned a high place in the Machine Tool Industry for

## Becker Belt Driven Millers

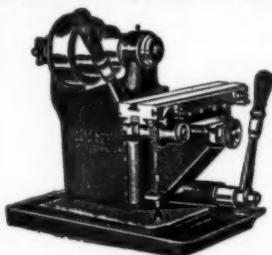
The Internal Belt Drive provides an elastic feed to the spindle, eliminating chatter and prolonging the life of the cutter used.

As a production tool The Becker is without an equal.

*Circular S701 tells why. Write for it today*

**Becker Milling Machine Co.**  
Hyde Park, Boston, Mass.

## Just The Machine



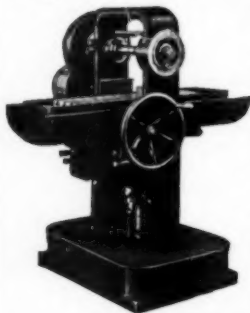
for those light cuts on details for Fire-arms, Sewing Machines, Typewriters, Bicycles, Electrical work, and a thousand and one other details used in the manufacture of the various products of the manufacturing world.

*Send for descriptive circular*

**The Carter & Hakes Machine Co.**  
**West Winsted, Conn., U. S. A.**

AGENTS—for New England and New York, Hill, Clarke & Co.  
WESTERN AGENTS—Marshall & Huschart Machinery Co.,  
Chicago, St. Louis, Indianapolis.

## Rigidity--Power--Convenience



### Briggs High Duty Milling Machine

**Rigidity**—The direct geared drive and the heavy table enable the machine to cut hard steel on wide cuts without the slightest chatter.

**Driving Power** is greater than that of any other miller of its size and weight:  $3\frac{1}{2}$ " double belt with gear ratio of 4 to 1.

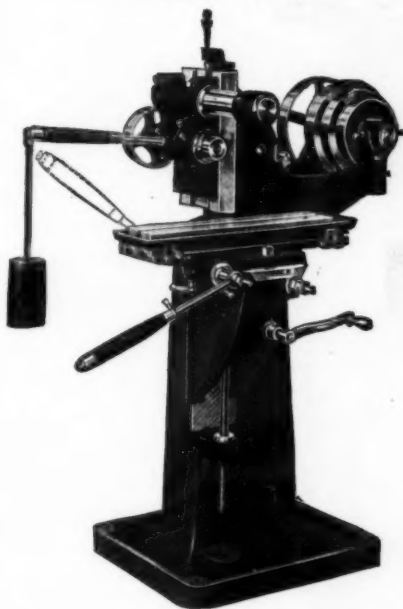
**Convenience of Operation**—Table has powerful screw feed. It is provided with a quick return consisting of a rack, pinion, and hand wheel.

*Has other superior features. Write for full details.*

**GOOLEY & EDLUND, Inc., Cortland, N. Y.**

# **"Whitney" Hand Miller**

**THOUSANDS IN USE**



The Milling Machine with the SLIDING HEAD. No other design equals it for speed, accuracy, economy, and convenience. Useful every day in the year on countless operations.

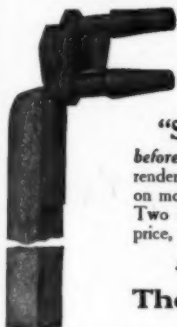
**Prompt Deliveries**

**The Whitney Mfg. Co., - Hartford, Conn.**

**Chains—Keys—Hand Milling Machines**

## Why Wait Till Accidents Occur

To Install "Safety First" Belt Sticks?



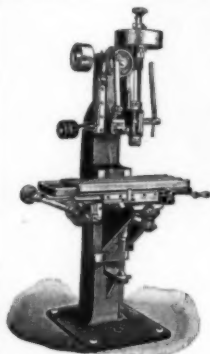
The best way to keep your horse is to lock the barn *before* the horse is stolen. And the best way to prevent accidents to the men and women in your shop is to get

### "Safety First" Belt Sticks

*before* accidents happen. These belt sticks render impossible all accidents in putting belts on moving pulleys. They *can't* get caught. Two sizes, 1" to 4" and 4" to 6", at one price, only \$1.25 each or \$12 a dozen.

*Safety First is the best policy*

**The Ready Tool Co.**  
Bridgeport, Conn.



## A Superior Vertical Miller

With Slotting Attachment

The Clough No. 2 is provided with dials reading to 1000's of an inch. Its superiority is due to its convenience, rapidity and accuracy.

Unexcelled for blanking dies, die sinking, metal patterns and light machine work. Tool block can be swiveled around for cutting cross or lengthwise of the table.

Size of table.....28"x9 $\frac{3}{4}$ "  
Lengthwise auto feed 21"  
Cross motion ..... 9"  
Vertical adjustment..... 15"

*We can always interest the economizer. Catalog?*

**R. M. CLOUGH,** Meriden, Conn.

## No. 14 Duplex Universal Vertical Miller and Shaper

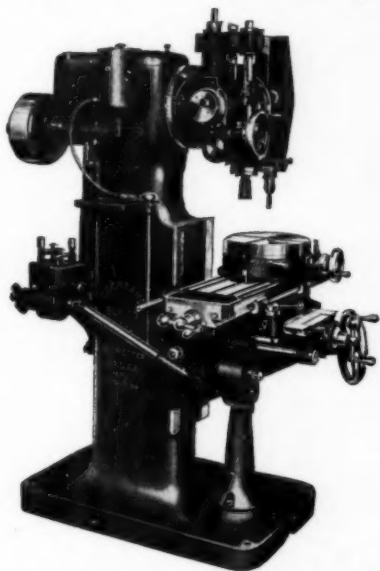


Table Feeds—9" Transverse.  $18\frac{1}{2}$ " Longitudinal. 18" Vertical. Shaper Stroke Maximum 6". Vertical movement of Milling Spindle  $3\frac{1}{2}$ ". Heads adjustable 360 degrees right to left, and 40 degrees front or back from center.

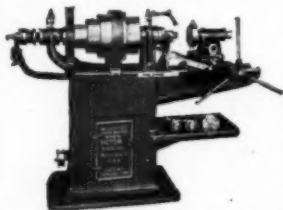
Machine will drill, bore, ream, slot and plane at any angle at one setting of the work.

**Write for catalog**

**COCHRANE-BLY CO.,      Rochester, N. Y.**

# Victor Nut Facing Machine

For Rapid Facing True to Thread



*Speed*—The average operator faces 10 to 12  $\frac{1}{4}$ " to  $\frac{3}{4}$ " nuts a minute; larger ones in proportion.

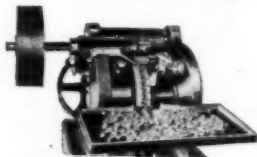
*True to Thread*—Facing true to thread is insured by facing nuts on a hardened threaded mandrel.

*Substantial*—Seldom, if ever, needs repairs. No parts ex-

posed to wear except high-speed steel cutters, which have only to be ground for proper clearance, and are cheaply replaced when worn down. Made in two sizes. Arranged for motor drive if desired. Write for complete description.

**VICTOR TOOL COMPANY, - WAYNESBORO, PA.**

# Continuous Rotary Miller



**Castellating  
Screw Slotting  
Slab Milling  
Straddle Milling**

High production. Positive accuracy. Low cost of operation.  
Enquire of your dealer or write us for full details.

**THE CRAFTSMAN TOOL CO.**  
**CONNEAUT, OHIO**

# **This Angle Plate Converts Any Plain Machine Into a Universal Machine**



**Protected  
By Patents**

**8"x10" Worm Adjusting—Made in Four Sizes**

The Universal Angle Plate can be used on any machine tool, and enables you to plane, shape or mill with great accuracy. Tapers may be ground, and formed cutters ground by the addition of centers to platen. Invaluable for the die maker and repair shop. Moves thru 360° horizontally and 90° vertically; has verniers attachment reading to 5' for especially accurate work.

## **Some Recent Customers**

Bardons & Oliver  
Detroit Pressed Steel Company  
Kearney & Trecker Company  
Lafayette Motors Company  
Mc Carroll Lumber Company, Ltd.  
Michigan Smelting & Refining Company  
Moline Plow Company

Pennsylvania Rail Road Company  
New England Watch Factory  
Samson Tractor Company  
Timken-Detroit Axle Company  
Urbana Tool & Die Company  
Warner Gear Company  
Willys Corporation

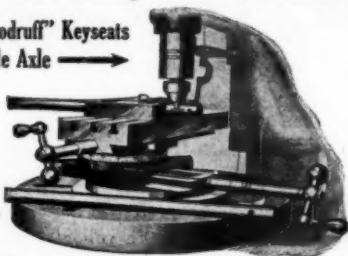
*Write for the Folder—you'll be glad you did*

**Boston Scale & Machine Co.**  
100 Ruggles St.,  
Roxbury, Mass.

## Mills On Any Drill Press

Cutting "Woodruff" Keyseats  
In Automobile Axle →

For the  
Garage  
Diemaker  
Repair Shop  
Patternmaker



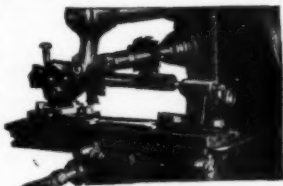
The Davis Milling Attachment and Compound Table can be used on any drill press from 14 to 42-in. swing. It is equally valuable in big and small shops, as it does most of the lighter jobs as well as a large, expensive machine; cuts all kinds of keyseats perfectly. Our cylinder reamers for reboring the Ford car, and our efficient air compressor are also attractively priced. Send for circulars.

**Hinckley Machine Works, HINCKLEY, ILL.**

## Transform Your Hand Miller

Our Dividing Head Makes it a Semi-Universal

THINK of the economy of being enabled to mill cutters, reamers, counterbores and a great variety of other small work with your hand miller—and doing it as quickly and accurately as with a big miller.



It is rotated very quickly into any number of divisions from 1 to 24 by even numbers. Small in cost but big in convenience—*write us for full description and price.*

**Whiting & Comstock**

32 Union Place,

Hartford, Conn.

Export Department, 77 Broad St., New York City



# DRIVES WOOD OR MACHINE SCREWS

With Automatic Magazine Feed  
At the Rate of 8,000 to 16,000 a Day

Dump a gross  
or more of  
screws here

Then press a foot  
lever and screws  
are automatically  
magazined and driv-  
en to desired depth



## REYNOLDS POWER DRIVEN AUTOMATIC SCREW DRIVING MACHINE

It drives practically any kind of wood or machine screws, hex.-head, square-head or filister cap screws, and is working so successfully and saving so much money for so many of the best concerns in the country, that its practical efficiency and great economy are absolutely beyond question.

*INVESTIGATE—that's all. And why not begin today?*

**THE REYNOLDS MACHINE COMPANY**

DEPT. H., MASSILLON, OHIO  
115

## DICKOW's are Improved

You will have to travel far to find 10-in. Universal Index Centers that will equal these in accuracy and all round dependability.

They increase production. Let us tell you about the points of excellence.



PROMPT  
DELIVERY



Patents Pending

**For Dependable Accuracy Get Dickow's**  
*Sold by dealers. Write us for complete description.*

**Fred. C. Dickow, 1858 W. Lake St., Chicago, Ill.**

## Equip Your Hand Millers With

**"Schipper" 10-Inch Universal Index Centers**

**Save Time and Money**



The metal is so distributed on these centers that they are made strong at the points where strength is most necessary. But their weight is only 85 pounds, which means little extra weight on the miller. In short, these centers are light but rigid as well as absolutely accurate. They are simple and easy to operate. They save time and money and increase milling production.

*If you will write us at Aurora, we'll give you full details*

**Schipper Machine & Tool Co.**  
**Aurora, Indiana**

# Redface Pulleys

**Sheaves and Fly Wheels**



**PERMANENT:** They are permanent, as they are not affected by age, heat, cold or moisture.

**RELIABLE:** They do not loosen up under vibration or intermittent loading.

**RUN TRUE:** They run true, steady the line shaft, and have a very small load due to windage.

**REDFACE PULLEYS** are especially adapted to use on motors, fans, pumps and special machinery.

*Catalog mailed promptly upon request*

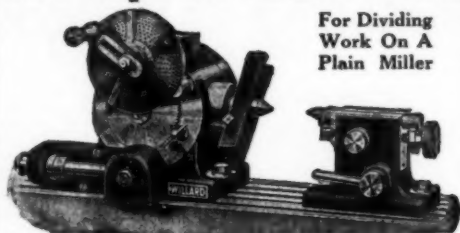
**Pyott Foundry Co.**

Cast Iron Pulleys, Sheaves and Fly Wheels

328 N. Sangamon St.,

Chicago, Ill.

## An Up-To-Date Tool



For Dividing  
Work On A  
Plain Miller

Built in very *liberal proportions*. Easily handles the heaviest cuts encountered on a plain miller. Graduated *swivel head* can be set anywhere from 10 degrees below the horizontal to 10 degrees beyond the vertical. *Worm, worm wheel and index pin* are relieved of all strain by means of an efficient *locking device*. Write for details.

THE WILLARD PRESS & TOOL CO., CINCINNATI, O.

Pat. Jan. 30, 1917

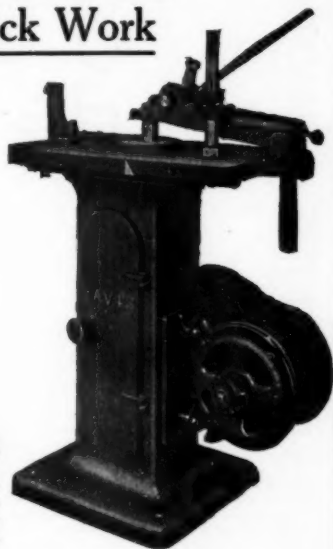
## Just What I Want



Automatic Extension Reel for Electric Lamps.  
Light just where wanted.  
25 ft. of cord.  
Automatically locks and rewinds.  
Approved by underwriters.

The Cincinnati Specialty Mfg. Co., Inc.  
1913-21 Powers St., - Cincinnati, Ohio  
*Branch Offices:*  
205 Abbott Bldg., Philadelphia, Pa.; 39-41 Cortlandt St., New York

## Modern Methods for Quick Work



### **A DAVIS KEYSEATER**

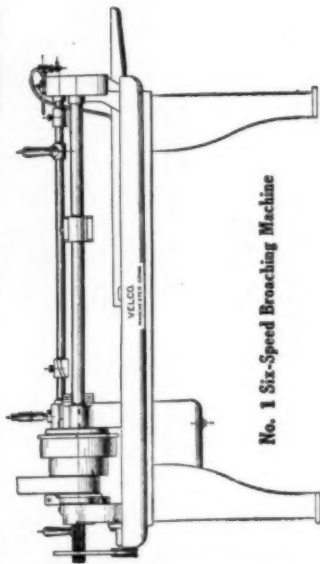
Motor driven,  
will save you  
valuable space  
as well as in-  
crease your pro-  
duction. It is  
an investment  
you can't afford  
to overlook.

*Write for Circular*

**DAVIS MACHINE TOOL CO., Inc.**  
**ROCHESTER, N. Y., U. S. A.**

The Fastest and Best Way to do KEYWAYS or BROACHING is

# The VELCO Way



No. 1 Six-Speed Broaching Machine

THE V. E. LA POINTE MFG. CO., Hilliard St., MANCHESTER, CONN.



*Branch Office Service on*

# STOCK BUSHINGS



*This is the type  
of Bushing which  
can be supplied  
from stock*

We recently announced our readiness to supply a wide variety of sizes of straight-dimension, finished, bronze bushings from *stock*,—giving you the benefit even on small orders, of the economies of volume production.

The immediate and emphatic success of this service has led us to broaden its scope by carrying both *Stock Bushings* and *Cored Bars* in our branch offices, as well as at the main plant.

*Address the nearest office  
and ask for Stock List "W"*

## The Bunting Brass & Bronze Co.

755 Spencer St.,

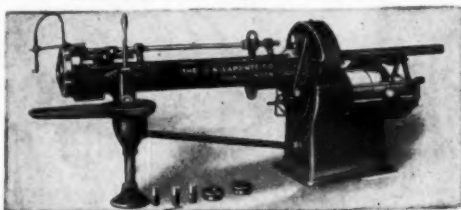
Toledo, Ohio

CLEVELAND: 1362 E. 6th Street.

CHICAGO: Room 312 Madison Terminal  
Building, 9 S. Clinton St.

NEW YORK: Grand Central Palace, Care  
International Factory Appliance Exposition.

This is only one of the  
**11 TYPES — 5 SIZES**  
 Ask for a complete catalog



**J.N. LAPOINTE CO.**  
 NEW LONDON, CONN.

Makers of Broaching Machines and Broaches.

For continuous, unrelenting hard work  
 in rapid reduction of stock



## The Etna Rotary Swager

Makes reductions in metal by a hammer action of immense force and extreme rapidity, striking about 3,000 blows a minute. Work can be passed through it at the rate of from 10 to 20 feet per minute, depending upon size and material. It often multiplies production 500% to 1,000% over power hammers.

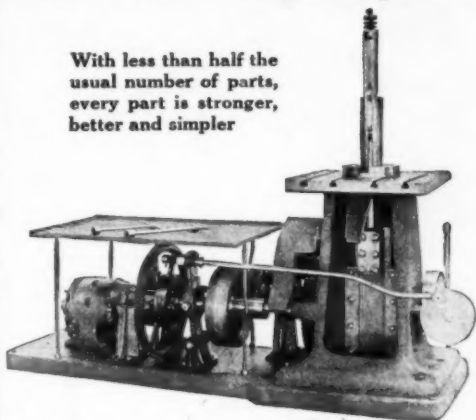
Made in regular sizes to swage  $\frac{1}{4}$  to  $4\frac{1}{2}$ " diameter. Write for large, illustrated Catalog showing interesting production figures.

**The Etna Manufacturing Co.,** TOLEDO, OHIO



For Rapid, Accurate Keyseating  
**The "Catlin" Reigns Supreme**

With less than half the  
usual number of parts,  
every part is stronger,  
better and simpler



THE "CATLIN" is so rapid, so accurate, so durable and so simple that it well merits its title, "The Most Popular Keyseater in the World." It has been used successfully by many large automobile manufacturers, navy yards, and almost all classes of machine shops. Here are examples of its speed: in 20 minutes keyseats were cut  $2\frac{1}{2}$ " long,  $\frac{1}{2}$ " wide and  $\frac{1}{4}$ " deep, in 20 mitre gears of 8" diameter; in 3 minutes a keyseat was cut 6" long, 1" wide and 7-16" deep, in a cast-steel hub.

The "Catlin" is accurate to even better than 1000's of an inch. And it is very simple, having less than half the working parts of any other keyseater.

*Write for large illustrated folder. Glad to send it*

**Chattanooga Machinery Company**  
**Chattanooga, Tenn.**

## In the Midst of Inventory? How Is Your Bar Stock?



Is it piled neatly and compactly?  
Is it easy to get at and to count?  
Are the sizes assorted? If there  
is room for improvement, why  
not get busy right away and in-  
vestigate—

### "The Handiest Rack"

It will keep several tons of this  
unwieldy stock properly assort-  
ed and neatly piled in about  
one-fourth the space usually re-  
quired. It also makes your pipe,  
shafting and bars easy to handle  
in and out and easy to keep  
track of.

*Of course you need it—now  
How about that trial order?*

**Wm. S. Yohe Supply Co.**  
503 Mahoning Road, N. E., Canton, Ohio

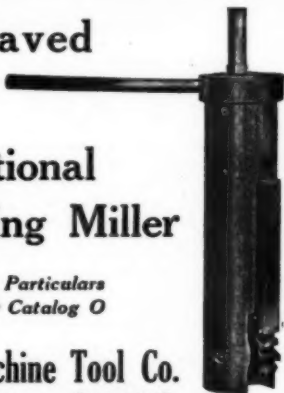
## Time Saved

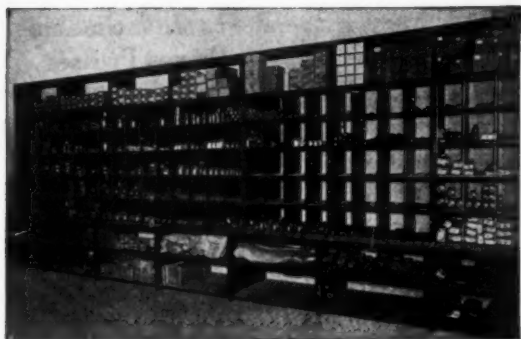
By using

## The National Keyseating Miller

*For Full Particulars  
Write for Catalog O*

**National Machine Tool Co.**  
2266 Spring Grove Ave., Cincinnati, O.





## It's Even Better Than It Looks

**The beauty of Terrell Steel Equipment is more than skin deep because it's lasting**

Steel shelving and bins look good when first put in, of course, but it also looks good many years after *because it stands the wear.*

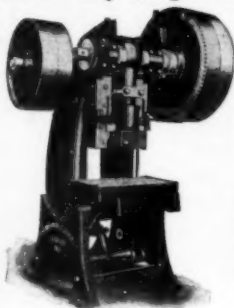
The superb wearing qualities of steel equipment make it the most economical material to use. The slightly greater initial cost over wooden fixtures is returned to you many times over. You pay nothing for repairs, less for insurance, there's less fire risk, and you save floor space. You install lasting service and all-around satisfaction.

*We invite you to make inquiries. Our staff is always ready to give advice, make suggestions and submit plans, at no cost to you*

### **Terrell's Equipment Company**

Hall & Division Sts., Grand Rapids, Mich.

## Accuracy + Speed—L. J. Inclinable Power Presses



Built along simple, durable and practical lines, embodying every modern convenience necessary for accurate and rapid production, as well as safety to the operator and dies. Cut shows No. 5 Combination Geared.

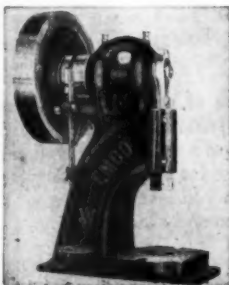
### Our Dealers

Stocker-Rumely-Wachs Co., Chicago  
W. J. Baird Machinery Co., Detroit  
Herberts Machinery & Supply Co.,  
Los Angeles and San Francisco, Cal.  
J. L. Lucas & Son Inc., Bridgeport, Conn.  
Brown-McDonald Mch. Co., St. Louis  
Northern Machinery Co., Minneapolis  
Clark Machinery Co., Cleveland, Ohio  
Patterson Tool & Sup'y Co., Dayton, O.  
Dale-Brewster Mch. Co., New York  
Swind Machinery Co., Philadelphia, Pa.

*Write to the nearest, or*

**Loshbough-Jordan Tool & Mche. Co.**  
Elkhart, Indiana

## Emco Bench Press



Weight, lbs.,.....130

Stroke,.... $\frac{3}{4}$ " or  $1\frac{1}{4}$ "

Capacity,... $\frac{3}{4}$ "x1-16"

**For rapid production on  
Small Parts**

Used in quantities by many large operators.

Specials—Iron Stand, Die Block, Inclining Blocks, Motor, Counter.

Absolute non-repeat stop on one stroke.

Made absolutely accurate for die and other fine work.

EMCO "W" Bench Pwr. Punch Press

**The Enterprise Machinery Co.,** 28 S. Clinton St.  
CHICAGO, ILL.

**George A. Lewthwaite**

**Time  
Tested**

# **Punches and Dies**



*For*

**Iron Workers  
Ship Builders  
Boiler Makers  
Metal Lathers  
Metal Bed Mfrs.  
Sheet Iron Workers  
Etc., Etc.**

**Try them out—that's all**

## **Lewthwaite Shear and Rod Cutter**

**This  
ient and  
find it just  
your shop, for it  
easily shearing and  
beyond its rated capacity.  
earn its cost in a compara-  
tively short time.**

**handy tool is compact, conven-  
easy to operate. You will  
right for many jobs in  
has power to do  
cutting even  
It will**



*Also*

**Pipe Benders  
Bar Benders  
Power Presses  
Foot Presses  
Etc., Etc.**

*Get our Catalog of Iron-Workers' Tools for handy reference*

**George A. Lewthwaite Co.**

**116 Walker St.,**

**-**

**- New York**

**You Can Depend Upon  
Anderson Improved Balancing Ways  
For Balancing Anything that Turns on a Shaft**



They are always ready—no adjusting necessary. They have no superior for quick and accurate balancing of cutter heads, crank shafts, aeroplane motors, propellers, armatures, rotors for turbines, etc.

They are perfectly balanced. Rotating discs are made of chilled iron, ground true on face, and run in especially designed ball bearings.

Five sizes, for parts up to 10,000 lbs., cover all requirements.

*Let us tell you how to simplify your jobs of sensitive balancing*

**Anderson Bros. Mfg. Co.**  
115 Morgan St., Rockford, Ill.



**The Reason Why**

**T. H. L. Punches  
Are Dependable**

These Punches are the result of nearly 30 years' experience in punch-making, and are adapted to meet all the needs of punch users.

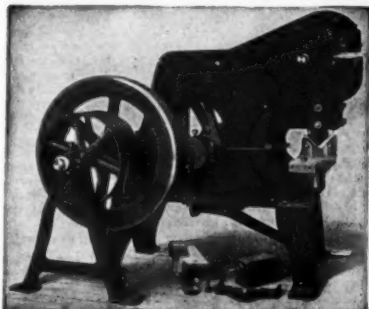
They are accurate and uniformly made of the correct steel, and insure a steady, rapid delivery of high-grade work. They save time, material, and money.

Prompt shipment of all regular sizes; special sizes on short notice.

*A trial order will convince you*

**T. H. Lewthwaite Machine Co.**  
415 East 31st St., (Est. 1890) New York City

**Punches—Shears—Bending Rolls**  
**The Beloit**  
**Combined Power Punch And Shear**



**Built in six sizes. Nos. 51, 52, 53, 54, 55 and 56**

**Direct connected motor or belt drive**

This is the best all around punch and shear in a combined machine of moderate cost. It is heavy and substantial, and amply back geared to require the minimum amount of power; is strong, compact, and easy to operate. Can be equipped with angle shearing attachment, architectural jaw, or for special work.

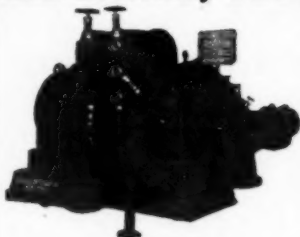
We are putting out a complete line of punching and shearing machinery in both power and hand tools, also light and heavy duty bending rolls.

We do not overrate the capacities of our machines.

*Write for catalogue and prices*

**Hendley & Whittemore Co.**  
**100 S. State St., Beloit, Wis.**

## Lea-Courtenay Fire Pump Unit



(WITH MOTOR DRIVE)

*Lea-Courtenay standard Underwriters Fire Pump delivering 1500 G. P. M. at 100 pounds pressure, running at 1750 R. P. M. Built according to the National Board specifications and approved by all fire underwriters.*

Adequate protection for the isolated plant or as a stand-by for emergency where electric as well as steam power is available. Always ready for instant service. Develops rated pressure with start of pump and maintains it constantly in operation. No expense when not in service. This type carried in stock in various sizes for immediate shipment. Every pump tested under actual operating conditions before shipping.

**LEA-COURTENAY COMPANY, 10 Maine St., NEWARK, N. J.**

MAKERS OF CENTRIFUGAL PUMPING MACHINERY

## "QUICKWORK"

Registered in U.S.A. and Foreign Countries

## Rotary Shears

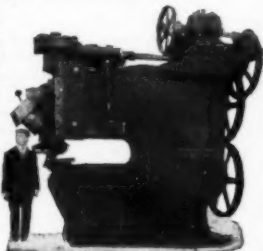
### Made in 7 Sizes

Cut all gauges of sheet and plate metal up to 1 inch thick in straight or irregular shapes and openings without cutting in from side of sheet. Leaves square, true edge that requires no finishing. Used in building ships, boilers, tanks, cars & general plate and sheet metal work.

**Save 50 to 90%**

Eliminates Oxyacetylene cutting and plate planing

Write for catalogue No. 60



Patented June 3rd, 1913

**THE QUICKWORK COMPANY, St. Marys, Ohio, U. S. A.**  
Cable Address "Quickwork," "W. U." and "General" Codes





Nos. 1, 2 and 5 Shears and Rod Cutter



Nos. 3 and 4 Shears

## Hercules Shears and Rod Cutters

No. 0—Shear (Tool Makers Bench Machine) Fitted with Bushings to Cut	$\frac{1}{4}$ "	$\frac{3}{16}$ "	& $\frac{1}{2}$ "	Iron Rod
and under,	$\frac{1}{16}$ "	Flat Iron and under,		
No. 1—Shear Fitted with Bushings to Cut	$\frac{1}{4}$ "	$\frac{3}{8}$ "	& $\frac{1}{2}$ "	Iron Rod
No. 2—	"	"	"	"
No. 3—Plain Shear	$\frac{1}{4}$ "	Flat Iron and under only,		
No. 4—	"	"	"	"

Shear blades have a draw-in cut with no tendency to crowd work out of shear. Pressure is directly over the cut by a rolling contact. Arm of movable blade is operated with a steel band. No springs on the machine.

Send for Shear Catalog

Manufactured and For Sale By  
**W. C. & F. C. TUCKER, Hartford, Conn., U. S. A.**

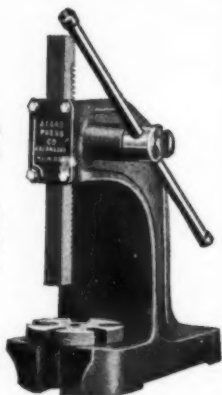
# Atlas Presses

pay for themselves  
quicker today than  
ever before.

Built in all sizes for all  
work which can be  
practically accom-  
plished by hand.

**Atlas Press Co.**

Kalamazoo, Mich., U. S. A.



## Portable Hydraulic Press

With Rapid Movement of Ram

20 to 60 tons capacity.

12" to 30" between uprights.

**A Very Useful and  
Inexpensive Tool**

FOR

**The Garage or  
Machine Shop**

We make presses for  
special work.

*Write for Catalog*

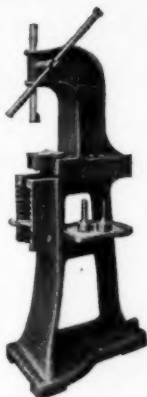
**Lourie Mfg. Co.**

Springfield, Ill.

## A NICHOLSON Arbor Press besides speeding production pays 91% on investment

**Suppose** that 4 of your mechanics saved only an hour each month by using the Nicholson Arbor Press,—they'll save more of course.— Were you paying them 75 cents an hour you would save \$36.00 on their time, and the Nicholson No. 3 Arbor Press costs only \$39.50 f. o. b. New York. Next year this saving would be clear.

And then, there is the saving of bushings, shafts, pinions, arbors, etc., which might otherwise be spoiled by the impatient use of a sledge. In addition to pressing out arbors Nicholson Arbor Presses are used for punching, bending, broaching, etc.



## NICHOLSON Expanding Mandrels

are also big dividend payers in time saved. With a set of them you can *instantly* fit any hole from  $\frac{1}{2}$  to 7 in. No calipering—no turning down—just put the mandrel in the hole and it's tight.

Let us send you our books on Nicholson Expanding Mandrels and Arbor Presses. Your name and address on a post card will bring them.

We'll send you these or any other Nicholson product on 30 days' trial.

**W. H. Nicholson & Co.**  
117 Oregon St., Wilkes-Barre, Pa.

### AGENCIES:

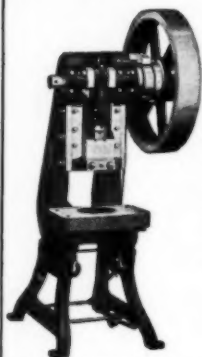
BURTON, GRIFFITH & CO., Ltd.  
Ludgate Square, London, E. C.

BURTON FILS  
68 Rue des Marais  
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MONTI & OSCURO  
Milano, Italy

ANDREWS-GEORGE CO.  
16 Takegawa-cho, Kiobashi-ku  
Tokyo, Japan

## Here Is A Press



With Plenty of Steam  
Back of THE PUNCH

HIGH DUTY  
**ROCKFORD**  
PUNCH PRESSES

Made in straight side and  
inclinable types. Their great  
power backed by rigid design  
enable them to do the work  
you demand and stand up to it.

*Write For Catalog*

**Rockford Iron Works**  
Rockford, Ill.

## A Machine You Need— Willard Power Press Inclinable Open Back

Does a *large range of work*, including  
all kinds of blank cutting, perforating,  
punching, forming and bending of  
sheet metal. Has many exclusive  
features. The latch has a *positive safe-  
ty stop* which makes it impossible  
for the press to "repeat" until the treadle  
is pulled clear down; press can be oiled  
while in motion. A *powerful, accurate  
and durable* press for hard service.



*For full information, write to*

**The Willard Press & Tool Co.**  
Cincinnati, Ohio

## How About Your Stock Of Greenerds?

Are you using all the Greenerd Arbor Presses that you ought to?

If you have any Greenerds at all—as nearly every shop has—you know they have made and saved money for you way beyond their original cost.

So when we tell you that we have greatly extended and improved our whole line, you know we have something good in store for you. Greenerds are now made with pressure capacities ranging

### From 15 Pounds to 40 Tons

That covers about every class of service to which a steady pressure may be applied, from driving pins into and out of small rolls to forcing in crank pins and bushings, straightening automobile axles, removing gears from automobile transmission countershafts, etc., etc., etc.

No doubt there are many operations in your shop which could be speeded up with one or more types of Greenerds; and if so, of course you will be glad to know it.

You will find it well worth your while to get posted, and we suggest that you ask your Dealer about the present Greenerd productions, or write direct to the address below for the latest Catalog.

*If you get busy today you can't forget it*

**EDWIN E. BARTLETT**  
**NASHUA, N. H.**

## 500% Increase In Output



### The Grant Rotary Rivet Spinner

Gives a 500% increase in output over hand riveting, and an unskilled boy or girl can easily operate it.

With the Grant Rotary an unusually diversified range of articles may be riveted together by an absolutely *noiseless* and *blowless* method, producing results far greater in quantity, superior in finish and uniformity.

The capacity of this machine is 1 rivet per second. Work produced is uniform from the smallest rivet up to  $\frac{3}{8}$ " shank.

*Don't you want to look into it ?*

**The Grant Mfg. & Machine Co.**  
C. E. Station, Bridgeport, Conn.

## Partridge Light Punch Press

For making novelties from sheet metal, including such operations as stamping, blanking, piercing, bending, forming, perforating, embossing, shearing and wire cutting. Has exceptional strength for its size.

Carefully adjusted to secure accurate working of the dies, and to prevent shearing. Pendulum action of lever gives a stroke of maximum power without tiring operator. Workmanship and material the best.

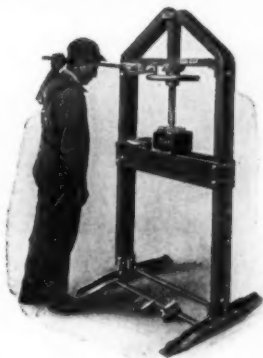
*Write me for the interesting price*

**E. O. PARTRIDGE, 2041-2049 CHICAGO**  
W. Lake St.,

Also Bench, Column & Cabinet Grinders, Polishing Lathes, Light Punch Presses, Hollow Mills, Countershafts, Chuck Arbores and Saw Mandrels



Thousands Of  
**WEAVER** FORCING PRESSES



*Are Serving*  
**Garages  
Electric Shops  
Machine Shops  
Factories  
and  
Many Other  
Industries**

*Because of the*  
wide range of application, great depth adjustment, ease in handling bulky work, greater satisfaction in small work,

**Quick Release Feature and  
the Enormous Leverage**

which enables the mechanic or workman to exert a maximum pressure of more than 20 tons without calling assistance.

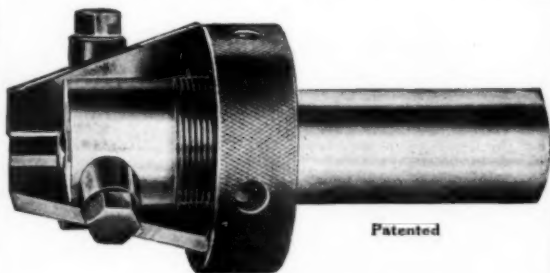
*For complete description write for Catalog "E"  
Net price East of Pacific Territory, \$85.00*

Special presses of extra width can be furnished at a nominal charge

**Weaver Manufacturing Co.**  
2179 So. 9th Street, Springfield, Illinois

# Latest Genesee

## Save Time and Money



Patented

### Adjustable Hollow Mill

**Replaces Hundreds of Solid Tools—Cuts 12" to 15" a Minute in Steel  
Adjustable to Thousandths of an Inch**

The Genesee differs from solid tools in many important respects—it never clogs and cannot change size; only 14 sizes cover the entire range from  $\frac{1}{4}$ " to 2", replacing hundreds of solid tools; one set of blades will outlast three to five solid tools, and are replaced at small cost.

This highly economical tool is 100 per cent efficient, utilizing machines to their full capacity. It saves money by reducing time and costs, and it earns money by increasing output.

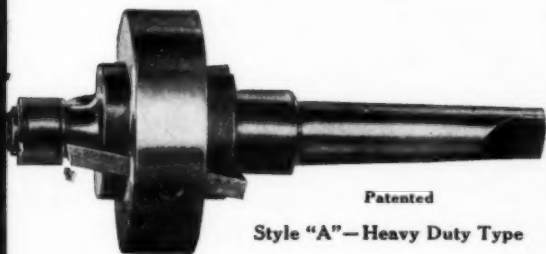
*If interested in rapid production, get in touch  
with us — our engineers are at your service*

**Genesee Manufacturing Co.,**  
Manufacturers of Adjustable Hollow Mills, Facing



# Economy Tools

## and Increase Output



Patented

Style "A"—Heavy Duty Type

### Genesee Facing Tool

Uses High-Speed Steel to the Limit, at a Fraction of the Cost of Solid Tools, saving Hundreds of Dollars in Steel alone

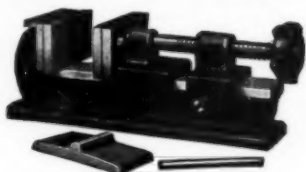
The chip space in the Genesee Facing Tool never varies after any number of grindings, so that it is 100 per cent efficient all the time. Compare this with solid tools in which, after several grindings, the lessened chip space soon causes the tool to become clogged, thereby decreasing production.

The blades outwear three to five solid tools. Then remove them and grind—no special jig or machine required. Unnecessary to remove tool from machine—simply replace blades without any readjustment of machine.

*Write to us for full description of  
this powerfully built, economy tool*

nc., - Rochester, N. Y.  
ing tools, and Inserted Tooth Face and Side Milling Cutters

# Gem Drill Vise



**Strong and Durable**  
**Quick in Action**  
**Powerful Grip**

Made by

**J. E. Martin Tool & Die Co.**

548 West State Street,

Springfield, Ohio

## Star Vises

THAT efficient service over a long period is a recognized characteristic of Star Vises is shown by the steadily growing list of manufacturers who are adopting Star Vises as standard equipment.

**"Star"**



Standard Machinists' Bench Vise

*Warranted*

**Made in all Standard  
Sizes and Types**

*Write for illustrated catalog*

**Fulton Machine & Vise Co.**  
Lowville, N. Y.

SOLE SALES AGENTS

**Boker Cutlery &  
Hardware Co.**

101 Duane St., New York, N. Y.



Universal Swivel Toolmakers' Vise

*Warranted*

For Quick and Accurate Reaming  
**Cashman Adjustable Shell Reamer**  
It Has Merits That Will Appeal To You



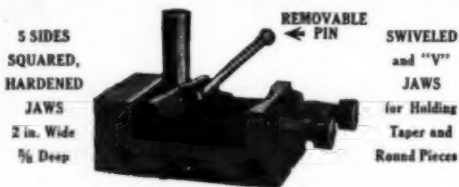
For one thing you can absolutely rely upon the adjustment throughout the full range of the tool. It is controlled by an adjusting screw or a lock collar, either giving a positive and dependable lock to each blade. This insures that a hole reamed with The Cashman will be exactly the size for which the reamer is set.

The high speed steel in the blades provides the cutting efficiency and durability under severe service that gives The Cashman its unquestioned ability to increase production and decrease shop costs.

*We Ask You To Try It At Our Risk  
Where Shall We Send One ?*

**Cashman Tool Company**  
Waynesboro, Pa.

## "AUSTIN" HANDY VISE



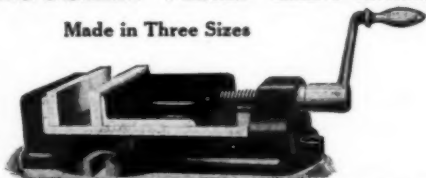
A strong, compact and self-contained tool for the tool room. Price only \$4.75 delivered anywhere in the U. S. A.

*Write for further description  
Liberal Terms to Jobbers on request*

**Austin Tool & Machine Co., Inc.**  
915 N. Murtland Ave., Pittsburgh, Pa., U. S. A.

## HOOSIER VISES FOR DRILLING AND MILLING MACHINES

Made in Three Sizes



While these unusually handy and sturdy vises are especially designed for holding work on drilling and milling machines, they can be used to equal advantage on planers and shapers.

They are made of the very best materials and accurately machined. Jaws are faced with hardened steel unless otherwise specified.

A milled key slot the entire length of the bottom of body insures accurate alignment on milling machine table. Also provided with flanges with bolt slots, for securely anchoring to table of machine.

*Better have us mail you description and price list*

**HOOSIER DRILLING MACHINE CO., GOSHEN, IND.**



## McCrosky Super Reamers

**FIRST RATE**— said the "Super" in the Locomotive Stoker Company's plant at Pittsburgh, Pa. We've been using "McCrosky" Super Reamers for a LONG TIME—in fact, all our Reamers are McCrosky.

One of our 4" Reamers removes .0050" stock from a 3½" deep hole in malleable iron. It does this at least 200 times between grindings, proving beyond question that "McCrosky Cost Cutting Tools" means just what it says.

*Read all about Super Reamers in  
McCrosky Efficiency Book No. 6*

**McCrosky Tool Corporation**  
Meadville, Pa., U. S. A.

Detroit: Kresge Bldg., C. M. Sutton, Manager  
Export Manager, B. Whittaker, 21 State St., New York

# Eclipse Self-Tightening Drill Chuck



Roller bearing.

Quickest and easiest grip, and it never slips.

Self-tightening. No keys or wrenches.

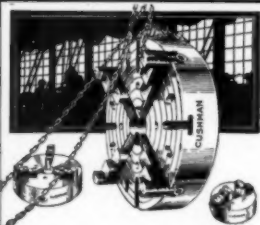
It has no rival in its combination of quick and firm gripping, easy release, simplicity and accuracy.

We have also adapted this hand operated chuck for use on electric drills.

*You need it now. Why wait?*

**Nielsen-Barton Chuck Co.,** 106 S. Jefferson St.  
CHICAGO, ILL.

Also makers of ARBORS for all kinds of Chucks



**"CUSHMAN"  
CHUCKS  
1862**

**THE  
STANDARD  
FOR  
EXCELLENCE**

**WHEN THE BEST IS NONE TOO GOOD  
SPECIFY CUSHMAN CHUCKS  
THEIR USE IS WORLD WIDE**

**THE CUSHMAN CHUCK CO.  
HARTFORD, CONN., U.S.A.**

# Unequaled Advantages of the **BARKER WRENCHLESS CHUCK**

It operates **INSTANTLY**.

It centers **Automatically**.

Its grip is enormous, and yet, any desired pressure may be set at the touch of the operator.

Its jaws may be operated whether the chuck is revolving or still.

Sizes 6 to 16 inches

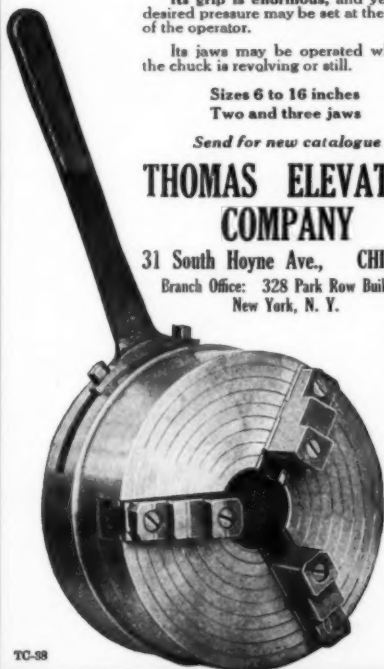
Two and three jaws

*Send for new catalogue*

## **THOMAS ELEVATOR COMPANY**

31 South Hoyne Ave., **CHICAGO**

Branch Office: 328 Park Row Building  
New York, N. Y.



TC-38

# Wear-Ever Woodruff Keyway Chuck

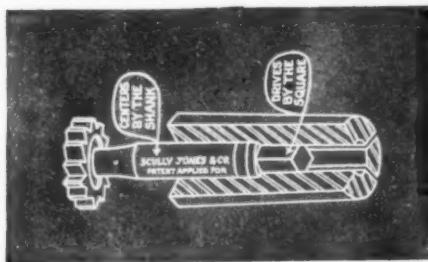


**Drives cutter by square  
and centers by shank**

***Positive drive***

***Cutter runs  
true***

***Reduces  
breakage***



Made in one piece, hardened and ground—no screws to adjust—no parts to become lost in the shop





The WEAR-EVER Woodruff Keyway Cutter Chuck drives the cutter by the square and centers by the shank, which insures a positive drive and true-running cutter. Eliminates the making of collet chucks. Fits all spindles of standard makes of milling machines, and is made in all tapers such as Brown & Sharpe and Jarno tapers.



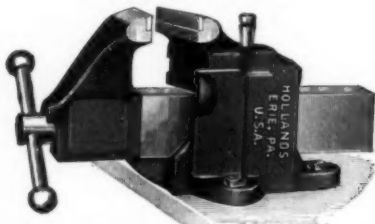
Woodruff Keyway Cutters with squared shank are manufactured by us, without any extra cost being added to the price.

*Try them and you will never be without them. Will you write today?*

**Scully-Jones & Company, Chicago, Ill.**  
Suite 555  
Railway Exchange  
Building

## We Have Had 32 Years' Experience in Making Hollands Machinists' Vises

"You Reap the Harvest"



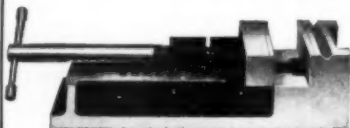
*Strongest, most rigid vise made. Let us post you*

**HOLLANDS MFG. CO.,**  
Established 1887

**Erie, Pa.**

## Particularly Adapted To The Drill Press Quick Acting Cincinnati Vise

Three Sizes: 3½", 5" and 7"



### Dimensions of No. 5

Width of vise 5"  
Vise opens 6"  
Width of jaws 5"  
Depth of jaws 1½"  
Opening thru  
center of base 1½"

Guaranteed true in all three positions in which it is placed. From either standpoint—construction or production—it will fully meet all requirements for this kind of vise. To operate, shove sliding jaw up to the work and give a turn of the screw—time, 3 seconds.

*Particulars on request by return mail. Write to*

**Cincinnati Vise Company**  
Station H., Cincinnati, Ohio, U. S. A.

# Yost Vises

The Favorites of Skilled Mechanics



**Solid Jaw, Stationary**

Yost Vises are made for every machine shop purpose. The four here shown are only a part of our complete line, as shown in the illustrated Catalog.



**Solid Jaw, Swivel Base**



**Universal Double Swivel**

The Yost Drill Press Vise replaces special and costly jig fixtures so often necessary in drill press operations. It has "Yost" quality and convenience.

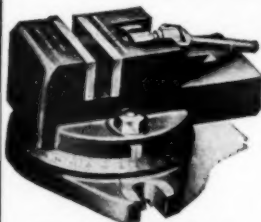


**Yost Drill Press Vise**

*Better have the Catalog on hand for reference*

**Yost Manufacturing Co.**  
Meadville, Pa.

**CAN BE OPENED, CLOSED AND CLAMPED  
IN AS MANY SECONDS**



**The Vise With Virtue**

**Nestor Quick-Acting Drilling and Milling Vise.** Four sizes, 2½, 4, 6 and 9 inches.

**Immediate shipment**

We have exceptional facilities for light manufacturing, jig, die, fixture, gauge and punch work. Let us know your requirements for quotations.

This cat-quick vise with a grip like a bulldog is easily the best vise buy on the market today.

Precision-built and with extra capacity the

## **Nestor Vise**

stands supreme. Let us tell about the special, quick-sliding jaw in detail. Also made with square, flanged bottom, sides and ends.

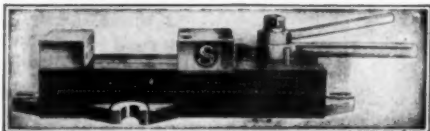
**Write TODAY for  
description and prices**

**Nestor Mfg. Co., Inc.**

40 W. 13th St., New York City

## **The General Purpose Vise**

**"Supreme" Quick-Action—Simple and Durable**



Patented May 8, 1919

A better vise for general purposes cannot be found.

It has a **larger range** than other vises of the same size.

It is **durable**, having nothing which can get out of order.

It is **easily and quickly operated**. One push against the cam lever **draws the work down** in the vise and **securely clamps it**.

**Write for literature describing its "10 Superior Features."**

**SPAFFORD TOOL WORKS, - Hartford, Conn.**

Export Department, 77 Broad St., New York City

Don't Guess About Chucks

# Use "Sweetlands"—

The Standard, All-Around Chucks



The rapid, secure and suitable *chucking* of widely different shapes and forms is fully as important as the actual cutting of the work.

## Sweetland Lathe Chucks

(1) quickly and readily adapt themselves to work of varying shapes and requirements; (2) possess great gripping power, easily exerted and accurately controlled; (3) permit of minute and exact adjustments, as they are accurate to 1000's of an inch.

In addition, "Sweetlands" possess a number of individual features; e. g., the only permanently satisfactory *reversible chuck jaws*, etc., etc.

Write for Catalog No. 12-C for full details of the "Sweetland" family

**The Hoggson & Pettis Mfg. Co.**  
New Haven, Conn., U. S. A.

## Workwell Tapping Machine

Built for Service  
Has Many Fine Points



2 bar slide to hold work straight with tap.

Steel gears 2" diameter, enclosed and running in oil.

Extra large hardened clutch. One loose pulley with hardened clutch. Non-slip tap holders. Die holder for threading outside threads. Stop adjustment for any depth of thread.

**MADE IN TWO SIZES.**

Type B 2 for threads to  $\frac{1}{4}$ " diameter    Type C 2 for threads to  $\frac{1}{2}$ " diameter

Give it a trial. Manufactured by

**Workwell Engineering & Mfg. Co.**

Dept. 2

616-620 W. Monroe St., Chicago, Ill.



## Don't Break 90 Per Cent Of Your Taps

It is estimated that 90% of all taps break before they are worn out. Often in difficult jobs, such as blind and bottom tapping in shallow holes, a tap breaks before you can work the stop on the machine. This waste is needless, however, and may be positively eliminated by using

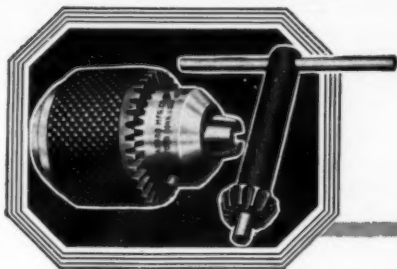
### **The Woodstock Improved No-Tap-Breakage Chuck**

It automatically releases tap the minute it binds or touches bottom. Utilizes 95% of tap without breaking it.

*Used by U. S. Armies. For details, write to*

**Peter Bros. Mfg. Co.**

115 Railroad St.,    Algonquin, Ill.



## The Man That Does The Work

Employers of labor are giving more time and sympathy to the mechanic's view of the job.

Men enjoy working with up-to-date, "no fuss" tools and equipment.

The largest, prosperous, most efficient factories in the world have installed Jacobs Improved Drill Chucks to aid their workmen and conserve their energy, time and temper.

Their 16 years of continuous and evergrowing service have made them the dominant chucks where reputation must be built on operation.

*Made in 6 different  
models in 12 styles  
ranging from 13/64"  
to 1".*

**THE JACOBS MFG. CO.**  
Dept. H. L.  
**HARTFORD - CONN.**





**Davie Gauging Machine.**  
Graduations in .0001  
Height 17" — Length 15" — Width 9"

BURTON, GRIFFITHS & CO., Ltd.  
Lodgate Sq., Lodgate Hill, London, E.C.  
Agents for Great Britain  
SOC. ANONIMA ITALIANA ALFRED HERBERT, Milan, Italy. Agents for Italy

**For inspection work where  
limits are close and accuracy  
and speed essential**

1. Measuring Plug Gauges in readings of .0001
2. Measuring Interchangeable Parts in readings of .0001
3. Measuring Drill Jig Bushings in readings of .0001
4. Measuring Pistons in readings of .0001
5. Measuring Ball or Roller Bearings in readings of .0001
6. Testing Concentricity of Form Milling Cutters .0001
7. Testing Concentricity of Spindles of various designs .0001
8. Settling Shop Disputes over Micrometer Readings
9. Speeding up Production Gauging

Any attachments to suit your needs  
The Davie is Standard Throughout America and Europe

22 in use in The Ford Motor Plant Alone

*Send for catalog*

**The Davie Tool Co.**  
E. 118th & Euclid Ave., Cleveland, O.

SOC. ANONYME ALFRED HERBERT  
47 Boulevard de Magenta, Paris  
Agents for France  
Agents for Italy

## **Simplifies Gauging Systems**

**Our Amplifying Gauge  
puts 75% of snap gauges  
out of business**

The over-size or undersize of a piece is instantly shown with the Amplifying Gauge. When gauge is set, parts can be gauged as fast as the workman can handle them.

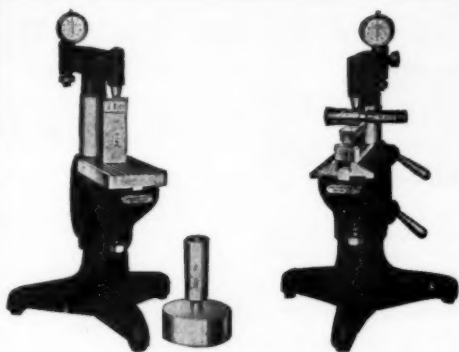
Wherever the Swedish gauge system is used, the "Amplifying" is especially valuable. Used by U. S. Government, and is popular in big automobile plants.

*Catalog No. 100 explains; ask for it*



**THE NORTH SIDE TOOL CO., Dayton, Ohio**  
Manufacturers of Special Tools, Dies, Jigs and Fixtures





## The American Amplifying Gauge Assures You of Permanent Accuracy

*This Modern Instrument*—is much superior to fixed gauges and micrometers. Even an unskilled operator can accurately gauge cylindrical and flat work quickly and with the utmost economy of time and labor. It practically does away with all disputes between the machine operators and inspectors in regard to the accuracy of the work.

American Gauges are used in big automobile plants for measuring pistons and piston pins, thickness of piston rings, valve stems and similar parts.

We should like to explain to you the great economy of the "Limit System" in connection with the gauging of parts, and how the "American" makes it eminently practical and easy.

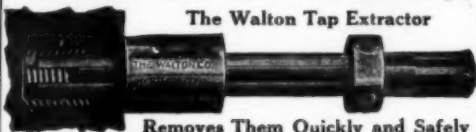
*Time is worth more than ever before  
Let us help you save some*

**American Gauge Company**  
**Dayton, Ohio**

Foreign Agents: Alfred Herbert, Ltd., London, England

## You Need Not Fear Broken Taps

### The Walton Tap Extractor



**Removes Them Quickly and Safely**

This tool is an inexpensive device for removing taps which break at or below the surface of the work. It will enable you to use taps with more freedom, as the broken tap is quickly and easily removed from the hole and without injury to the thread. One of these tools may pay for itself in removing the first tap broken.

**Sizes from No. 8 to 1½"**

*Let us describe or quote*

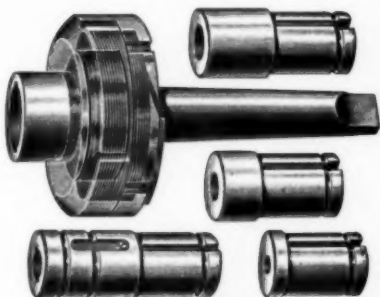
**THE WALTON CO., Hartford, Conn.**

## Machine Tool Makers

should investigate carefully the facilities offered by **Hitchcock's Machine Tool List** for reaching this trade in all parts of the country. Its circulation is specialized to completely cover *every line of manufacture* in which machine tools are used—as well as all railroad and other tool-using shops—with a thoroughness and effectiveness not equalled by any other advertising medium.

# **The Safety <sup>Friction Driven</sup> Drill and Tap Holder**

**Saves Time, Tools and Temper**



**The Four Sizes Cover 0 to 2½ in. diameter**

This power driven holder permits tapping to the bottom at full speed without danger of breaking anything, for when the tap is subjected to any undue strain it stops before reaching the breaking point while the spindle revolves. This saves time, taps and temper.

There is nothing about it to break or get out of order. It is unequalled for simplicity, rapidity, economy and accuracy, and it is giving splendid satisfaction wherever used. Change is made from drill to tap, or tap to drill, without stopping the spindle.

*Try it out on your most difficult work*

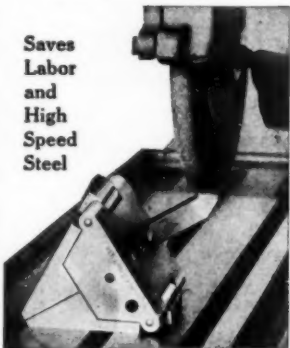
**The Beaman & Smith Co.**  
**Providence, Rhode Island**

# **The Boss Jig**

## **For Holding Thread Cutting Tools**

**While grinding 29 degrees acme, or 60 degrees  
U. S. standard, or any degree between 29 and 60**

**Saves  
Labor  
and  
High  
Speed  
Steel**



The slotted screw in center of face controls the various angles required by turning, which causes the hinged wings to move in and out.

Clearance on thread tool is automatically provided for as the hinged wings are offset the correct degree to produce clearance.

Has containers for 3/8" and 5/16" tools; also furnished in special sizes.

The thread tool is accurately ground on both sides and top without removing from the jig.

**Retail price \$15.00, delivered anywhere in the United States.  
We shall be glad to quote terms to jobbers upon request.**



*The biggest little tool made; better order today*

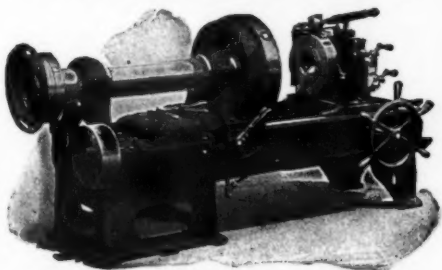
**G-L Sales Company**

**Sole Distributors**

**521-523 W. 26th St., New York City**

# On Straight Runs or Odd Jobs

## B. & Ks. Always Save Money



(No. 4 Peerless. Belt Drive. All Gears are Covered)

There are 17 styles and sizes of our Pipe Threading and Cutting Machines, which gives you an adequate choice to find just the right machine for your work. We have them for the manufacturer who must thread big quantities of pipe in quick time, and we also have machines that easily take care of odd jobs and small quantities.

All B. & Ks. are fitted with the Peerless Quick Adjusting Mechanism, which enables you to make instant adjustment to the 1000th of an inch without the use of tools. There are other features that help to increase production and keep down costs with which we shall be glad to acquaint you.

*Our experience of 33 years gives us  
every confidence that we can  
save you money*

**Bignall & Keeler Machine Works**  
**Edwardsville, Illinois**

# Quicker, Better, Cheaper Blue Printing

Quick blue printing saves time in factory and drafting room; good blue printing often saves material as well as time. A combination of the two means both economy and satisfaction.

The Paragon equipment will produce perfect blue prints in *four minutes*—the clearest, sharpest prints you ever saw. Three minutes of this is allowed for washing, the minimum time that will give permanent prints. Results

do not depend upon skill in manipulation; the machine produces them. Users report an increase in capacity of 150% with a corresponding reduction in cost. The economy of it is direct, but its greatest merit is in the effect of quick and perfect blue printing upon all the operations of your factory. This is a consideration that means real money to you.



Print Drying  
Machine



Blue Print  
Machine

*We have an interesting little booklet on blue printing we should like to send you without any obligation whatever. May we?*

**Paragon Machine Company, Rochester, N. Y.**



# Blueprints

## The Wickes

Continuous Electric.  
Sells at **half** the  
**price.** Uses **half**  
the **current**  
of others.  
Perfect prints  
up to 48" in  
width and of  
unlimited  
length.

Dept. H

Wickes Bros., Water Street,  
Saginaw, Mich.

# A Place For Everything

Pays Good Dividends—Always

## A Modern Bench

Solidly built, well finished, easy to clean, with a 5-inch guard around three sides of the top, six drawers, one blueprint slide, a shelf, and three large compartments for stock—a place for everything and everything in its place.



Installed in numbers by leading manufacturers to increase the efficiency of their tool makers and bench hands. It is a wonderful help. Write for full particulars.

**THE RITCHIE-WERTZ CO., Dayton, Ohio**

# CASEITE

## The Standard Material for CASE HARDENING

Increase your production—produce harder and cleaner steel—more uniformity. In other words, CASEITE will give you the maximum output of highest quality at minimum cost.

**Lump or Powdered**

*Write for Catalogue*

**BELL & GOSSETT CO.**  
630 W. 30th St., Chicago

## For Quick Case Hardening? Use Case Hardo—Of Course!

**Works Quicker, Hardens Better, Costs Less**

Requires less heat—only about 1400 degrees Fahr. when used in any cyanide furnace, and is therefore *quicker*.

It is better because it produces a glass-hard surface, of a good color, with deep penetration. It throws off no poisonous fumes.

It is by far the most economical because it saves labor, fuel and time, it costs less, and it hardens more work than an equal weight of any other hardening compound. Four years' general use has proven its reliability, and we know the results will please you.

**Made Only By**

**The Thos. Buchanan Company**  
29 W. 3rd St., Cincinnati, Ohio  
Established in 1886





## **Carbonizes All Steels**

### **Economically and Safely**

To use "Ferro Case" once means you will say good-by to cyanide forever. The reason? Greater safety and economy, and a better, cleaner case. It carbonizes at a lower temperature, thereby avoiding coarse crystalization, blistering, warping and wear of furnace linings and crucibles.

### **A Non-Poisonous Compound**

scientifically prepared, which does not lose its effectiveness with age or chemical action, and can therefore be stocked without danger of spoiling.

Ferro Case M is for use in the cyanide melting furnace, and is handled the same way.

Ferro Case S is for sprinkling on hot steel. In either case you get better results in absolute safety.

*We solicit a trial order from you  
Kindly specify the grade wanted*

**C. G. Buchanan Chemical Co.**

**Sta. H., Cincinnati, Ohio, U. S. A.**

## Contract Work Wanted

This department is exclusively for the use of those desiring to secure contracts for anything in the line of foundry or machine work, including press work, dies, jigs, fixtures, gears, die castings, drop forgings, screw machine products, springs, bolts, nuts, rivets, etc. Advertisements are to be set with side headings as shown, and with such display as may be appropriate to the copy used. Rates: one-eighth page, per month, \$4.

<p><b>Screw Machine Products</b></p>	<p><b>The New Britain Machine Co.</b> New Britain, Conn. Long experience, a complete organization, and the most efficient machinery put a real meaning in the slogan—"Quality, Service, Economy." Large work a specialty. Let us figure on your requirements.</p>
<p><b>Dies Tools Special Machinery</b></p>	<p><b>Robbins, Gamwell &amp; Co.</b> Pittsfield, Mass. Accuracy and efficiency in gages, dies and special machinery, is our specialty.</p>
<p><b>Dies Gauges Fixtures Special Machines</b></p>	<p><b>The Steber Machine Co.</b> Established 1891      Utica, N. Y.      Incorporated 1906 We have made a specialty of accurate work for the past 27 years.</p>
<p><b>Production Work Fixtures Dies</b></p>	<p><b>The Perfection Auto Parts Co.</b> 420 Lakeside N. W., Cleveland O. Machining of small forgings and castings in quantity to order. Development and manufacture of dies and fixtures for interchangeable parts.</p>
<p><b>Drop Forgings (All Kinds)</b></p>	<p><b>Bonney Vise &amp; Tool Works, Inc.</b> Allentown, Pa. Quick and Accurate Drop Forging and Finishing Good tools, good men, and good management insure precision and promptness. Investigate; when you know our facilities and our record you'll want our service.</p>
<p><b>Pressed and Stamped Steel Parts</b></p>	<p><b>Geuder, Paeschke &amp; Frey Co.</b> 1325-1700 St. Paul Av., Milwaukee, Wis. It will pay you to let us figure on such pressed, stamped or drawn metal articles or parts as you may require, be they made of steel, aluminum, brass or copper. Our 15-acre plant at your disposal. Get the benefit of our "Knowing how since '81." Send samples or blue prints for est.</p>
<p><b>Dies, Tools, Special Machinery. Production Work</b></p>	<p><b>THOR MACHINE WORKS</b> Racine, Wis. Co-operation—and on time deliveries—extreme accuracy in all measurements—and ripe experience in the building of Dies, Tools, Jigs and special machinery constitute THOR service. Special Production Department for machining of small forgings and castings in quantities.</p>

# Riveting Revolutionized

"The Hammer with the human stroke"

**Heads Rivets Cold**



Heads 'em tight or loose, flush, countersunk, or finishes heads any shape desired at the rate of:—

A rivet a second, sizes up to 3-16 in.

A rivet in two seconds, sizes 1-4 to 3-8 in.

A rivet in three seconds, sizes 7-16 to 5-8 in.

## **Built in Eight Sizes**

To handle rivets from the smallest, up to 1½" in diameter. Send us sample assembly parts with rivets or sketch of your work, and let US shoulder your riveting problems.

*Send for the High Speed Hammer Book*

Department 13

**The High Speed Hammer Co., Inc.**  
Rochester, New York

# **Special Machinery**

**Jigs**

**Tools and Fixtures**

**Designed or Built**

High Grade Work Only  
Complete Modern Equipment  
Experienced, Skilled Help

**Quick Deliveries**

**The H. E. Harris Engineering Co.**  
**Bridgeport, Conn.**

## **American Machine Products Company**

**Detroit, Mich., U. S. A.**

*MANUFACTURERS OF*

Three and Four Groove Drills.

End Mills, Reamers, Cutters and Special Tools.

Price List and Catalogue Mailed on Request.

Three Groove Drills and Bridge Reamers Our  
Specialty.

**Over \$225,000 Special Offering!!!**

# **New Machines**

**ATTRACTIVE PRICES**

**Prompt Delivery From Our Jersey City Warehouse**

- 2—20"x12' American Tool Works Engine Lathes, quick change, motor drive.
- 20—20"x8' Walcott Engine Lathes, double back geared, qk. chge.
- 2—14"x8' American Tool Works Engine Lathes, geared head, motor drive, taper attachment.
- 35—Rahn Larmon Co. Make, Engine Lathes, 16"x8', quick change, double back geared, friction head.
- 30—16"x6' American Tool Works, Engine Lathes, quick change.
- 6—17"x10' LeBlond Engine Lathes, heavy duty, double friction geared, quick change, taper attachment.
- 42—16"x6' Cleveland Engine Lathes, 5 with pan beds and taper attachment.
- 2—12"x5' Reed Prentice Engine Lathes, quick change.
- 25—Bardons & Oliver No. 4½ Ontario Screw Machines, friction geared head, with regular equipment.
- 2—No. 2 Becker Vertical Milling Machines with rotary attachments.
- 3—No. 3 Becker Vertical Milling Machines with rotary attachments.
- 1—No. 2 LeBlond Universal Milling Machine, single pulley drive.
- 19—Garvin No. 13 Back Geared Plain Milling Machines.
- 2—Rockford 14" Shapers, variable speed motors, d. c., 220 volts.
- 1—Van Norman No. 4 Internal Grinder with attachments.
- 1—Norton 6"x30" Plain Grinder with full equipment.
- 4—LeBlond Cutter Grinders with power feed and all attachments.
- 1—Rogers 34 Vertical Boring Mill, turret head.
- 2—American No. 1½ Plain Milling Machines.
- 3—U. S. Sensitive Drill Presses.
- 2—Wilmarth & Morman Grinders.
- 1—Each Norton Crankshaft Grinder, 14" x 72" and 20" x 96".

## **New York Machinery Exchange**

**OFFICES: 50 Church Street, New York**

**WAREHOUSE: 222-238 Culver Ave., Jersey City**

# Crank Pin Turner and Reborer

The Underwood is Made in Four Sizes



**Y**OU WILL FIND this portable tool distinctly superior, both in the accuracy of the work and in the time saved on any particular job. It is especially good in overcoming the difficulties of returning large crank pins.

Four set screws center it true with the pin in the same manner as a lathe chuck. The cutting tools are carried in a patent holder that grips them firmly. Feed is reversible while machine is running, and the work is in plain view of the operator.

Our comprehensive line of time and money saving tools includes the following:

Millers; circular planer tools; radius planers; rotary planers; machines for truing eccentrics, facing domes, arms for facing cylinder flanges; rotary flue cleaners; pipe benders; locomotive cylinder borers; boring bars for lathe work; crank pin turners; reflex water glass grinders; motors, etc.

*Let us send you the interesting Catalog*

**H. B. Underwood Corporation**

1015-25 Hamilton St., Philadelphia, Pa.

## Second-Hand Machinery.

Lists of Second-Hand Machinery, either for sale or wanted, set in uniform style, will be published under this heading at the rate of **50 cents a line**, across the page, each issue. **Minimum charge, \$4.00.** Sub-headings are counted as one line, but the name and address of advertiser are not included in the space charged for. No display in this department.

**Write directly to those offering the machines for sale** for prices and full descriptions. If what you require is not listed, use the blank enclosed to make known your wants to the publisher.

### FOR SALE BY

**Beaver Machine & Tool Co., Inc.** - - - **Newark, N. J.**

Grinding machine, Heald No. 70, with one extra head. This machine is nearly new, having been used only about two hundred hours.  
Screw machine, Foster 1 1/16", in fair shape.

### FOR SALE BY

**The Esterline Company,** - - - **Indianapolis, Indiana**

Disc grinder, No. 120 Gardner ball bearing.  
Disc grinders, No. 120 Gardner plain bearing, (2).  
Disc wheels, steel, 18", (16).  
Rectangular back ring wheel chuck, 16".

### FOR SALE BY

**Toro Motor Company,** - - - **Minneapolis, Minn.**

A Real Bargain  
Grinder, double head pin, 20"x72" Landis, equipped with wheel center for wheels with 12" or 20" holes; first class condition; f. o. b. cars at Minneapolis, \$2500.00.  
Grinding wheels, 33" diameter, 2 1/2" to 4" face, sold at a discount, (6).

### FOR SALE BY

**H. C. Marsh Co.,** - - - **Rockford, Illinois**

#### LATHES.

16"x 6' Rockford lathes, (6), each.....	\$ 375.
20x8" Putnam lathe.....	225.
Porter-Cable speed lathe.....	100.
Daniels single purpose lathes, (6), each.....	225.

### FOR SALE BY

**J. L. Osgood,** - - - **45 Pearl St., Buffalo, N. Y.**

Brass lathe, No. 3 Foster universal.  
Chucking lathe, 21" Potter & Johnston, \$350.  
Keyseater, No. 2 Davis.  
Shell cutting-off machine, 14" Williams.  
Turret lathe, 12" Brown & Sharpe, \$200.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Cyril J. Bath & Co.,**

**725 St. Clair Ave., East, Cleveland, O.**

Selections from Stock.

#### AUTOMATICS.

2½" and 4½" Model A Cleveland automatics, with large equipment, 75%.  
No. 24 New Britain automatics, late model, 85%, (2).

#### BAR STOCK MACHINES.

2" P. & W. screw machine with toolholders, 70%.  
3" P. & W. screw machine with toolholders, 70%.  
No. 6 Warner & Swasey screw machine, 90%.  
No. 3 Foster screw machine, power feed, 80%.

#### BORING MILLS.

42" Bullard vertical boring mill, one turret, one swivel head, 80%.  
24" Bullard vertical turret lathe, side head, 80%.  
S. H. Binsse horizontal boring machine, 18x40" table, 80%.  
Barnes horizontal boring and drilling machine.

#### DRILLING MACHINES.

20", 22½", 24" and 28" Sibley, new.	Colburn D-3 hi-speed, 80%, (2).
2-spindle 24" Barnes all geared drill,	26" Barnes, sliding head, 70%, (3).
pump and piping, and spindle with	26" Barnes, with tapping attach., (2).
tapping attachment, 85%.	Baker heavy drill press.

#### GEAR CUTTER.

No. 3, 26" Brown & Sharpe plain gear cutter, with all parts, 85%.

#### GRINDERS.

W. & M. drill, capacity ½" to 2½",	Wet and dry Yankee drill, 100%.
wheel trimming device, 100%.	10x72 Norton plain, 90%
18" Bryant internal, late model, 75%.	6x32 Norton plain, 75%.

#### HAMMER.

100 lb. Mayer, belt drive, regular equipment, new, 100%.

#### LATHES.

18"x 8' Mueller engine, qk. change gr., dbl. bk. grd., very good cond., 85%.  
36"x18" Putnam engine, quick change gr., dbl. bk. grd., compound rest, 95%.  
Small speed lathe, 10"x3', good.

#### MILLING MACHINES.

No. 3 Becker vertical, 95%.	No. 3-B Brown & Sharpe heavy hi-
No. 5-C Becker vert., cone pulley, 95%.	power; 80%, range 34"x12"x20".
No. 6 Becker vert., sgl. pulley, 95%.	Type A Briggs millers, 90%, (6).
No. 00 Brown & Sharpe plain, hand	Hendey Lincoln type miller.
mill, 65%.	Becker No. 7 Lincoln type, (2).

#### PLANERS.

36"x36"x16" Hewes & Phillips planer, 2 new swivel heads, new gears, rebuilt throughout by planer company, 80%.  
24"x24"x6" Gray planer, 80%.

#### PRESSES.

No. 27 Bliss embossing 2" str., width of bed 32", 1000 tons approx. cap. 80%, (2).  
No. 59 Toledo crank, d. b. g., 16 or 12" stroke, friction clutch, 80%, (2).  
No. 87 Bliss crank presses, double back geared, 80%, (2).  
No. 60½ Bliss rack and pinion drawing presses, 80%, (4).

#### RADIAL DRILLS.

24" Fosdick radial drill, 80%.

#### SAWS.

11½" Higley bolt cut-off saw, 14" blade, 60%.  
Metal band saws, 80%, (2).  
Peerless hi-speed, 6" saws; new, 100%, (2).

#### TURRET LATHES.

31" Gisholt, late model, taper attachment, 90%.  
24" Gisholt, late model, taper attachment, 90%.

#### SPECIAL.

6-ton Morgan steam forging hammer, 84" stroke, 36" cylinder, 8" rod, double frame, 90% condition, weight 300,000 lbs approximately.



## SECOND-HAND MACHINERY

Cyril J. Bath & Co.—Continued.

### MISCELLANEOUS.

Accumulator, 21" hydraulic, Southwark.  
Air compressor, Ingersoll-Sargent, with 50 h. p. motor.  
Annealing furnaces, 25'x8' Rockford, double door, (5).  
Annealing furnace, 16'x8' Rockford, double door.  
Above equipped with oil and gas burners, recording and indicating pyrometers, air rams and pulleys.  
Back chasing attachments, for No. 4 and No. 6 Warner & Swasey screw machines, 85%, (4).  
Bolt cutter, 2-spindle, 1½" National, full set of dies, 99%.  
Broaching machine, No. 3-A Lapointe, 85%.  
Die head, 4½" Geometric, 80%.  
Motor, 75 h. p. Westinghouse, good condition.

### FOR SALE BY

Fred. C. Dickow, - - - 1857 W. Lake St., Chicago, Ill.

#### TURNTABLE LATHE.

Pratt & Whitney 2½x26", with cross feed turntable, geared head, quick change feed, fairly good condition, real bargain, 30% of new cost.

#### LATHES.

15"x6" Hamilton like new.....	\$490.	16"x6" Lancaster new.....	\$490.
14"x6" Amtew new.....	695.	Ames precision bench, new.....	215.

#### DRILL PRESSES.

No. 0 Burke, new.....	\$ 17.	Avery high speed.....	\$ 95.
20" Barnes all geared.....	200.	4 Spindle Hoefer p. fd.....	350.
Stecher floor drill, new.....	61.	3½" Economic radial.....	675.

### MISCELLANEOUS.

Cutter grinder, Peerless and Marvel power hack saws, grinder, machinists' vises, miller and planer vises, straightening press, electric grinders, folder, brakes, motors, drill and lathe chucks, etc.

### FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

#### ENGINE LATHES.

14"x 6' Flather, c. r., standard pat.	17"x 7' Fulton, c. r., g. f. h. plain turning lathe
16"x 6' Bradford, c. r., 5-step cone, standard pattern.	18"x10' LeBlond, c. r. & t. a., 5-step cone, (2).
18"x10' Springfield, c. r., 5-step cone.	

#### TURRET LATHES AND SCREW MACHINES.

14" Lodge & Davis, plain head.	24" Davis turret boring and chucking lathe, with forming rest.
14" Lodge & Davis, b. g.	1½" A Cleveland automatic.
15" Acme screw mche., p. f. to tur., (3).	No. 00 Brown & Sharpe automatic.
24" Lodge & Shipley g. f. h. turret lathe, 2-step cone, 6" belt, p. f. to turret, with air chuck.	2" Hartford full automatic.

#### GRINDERS.

No. 10 Cochrane-Bly auto. bench saw filing machine.	Type "DE" Hisey-Wolf internal.
B Standard Diamond grinders, (2).	Rivett ball race grinder, with countershaft.
No. 1 Warner & Swasey, cock.	

#### RIVETERS.

11½" throat Giant rivet spinner.	No. 203 Giant rivet spinner.
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#### PUNCH PRESSES.

No. 11 Badger, hand.

### MISCELLANEOUS.

Cold saws, 12" Burke, (2).	Hack saws, Victor, power, (2).
Cold saw, Higley.	Polishing stands, heavy, (2).
Filing machine, Simplex.	Polishing lathes, City Machine Co., double end, (5).
Gear cutter, No. 2 Whiton auto.	Polishing head.
Hammer, 25 lbs. Coffman post, power driven, c. s.	Tapper, 1½" Burke, bench.
Hack saw, Excelsior, power.	Tapper, 1½" friction vertical bench.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Wm. C. Johnson & Sons Machinery Co.,**  
**1001-3-5 N. Sixth St., St. Louis, Mo.**

#### LATHES.

17"x 6' Oliver quick change.  
 18"x 8' Rockford, quick change.  
 20"x 8' Lodge & Shipley all g. h.

#### PLANERS.

26"x26" x5' Pease.  
 30"x30" x6' Putnam.

#### DRILLING MACHINES.

36" Baker Bros.  
 48" Bement gooseneck drill.

#### MILLING MACHINES.

No. 3 1/2 Fox.  
 No. 3 Owen, with dividing head.

#### GRINDERS.

12"x24" Modern plain.

#### MISCELLANEOUS

Blower, No. 3 Root.  
 Bolt header, 1 1/2" Blakeslee.  
 Brake, 8' steel, No. 18 capacity.  
 Brake, 10' steel, No. 16 capacity.  
 Bulldozer, No. 3 Fisher.  
 Gear cutter, 26" Cincinnati.  
 Grinder, No. 38 plowshare.  
 Hammer, steam, 1100 lb.  
 Numbering machine, Noble & W.

21"x10' LeBlond, q. c., heavy duty.  
 26"x10' Bridgeford quick change.  
 28"x16' Long & Davis.

30"x30"x8' Hewes & Phillips.  
 36"x36"x8' Gray.

42" Drees heavy duty.

No. 3 LeBlond plain, with dividing head.

14"x36" Landis universal.

Press, inclinable, No. 6 Niagara.  
 Press, arch, No. 40 Swaine.  
 Punch & sh. No. 1 L. & A., 24" tht.  
 Screw machine, P. & W., hand, 2".  
 Screw machines, Warner & Swasey, hand, 2".  
 Shear, alligator, No. 2 Doelger & Kirsten.  
 Turret lathe, 3x36 Jones & Lamson.

### FOR SALE BY

**McCoy-Brandt Machinery Company**  
**Office and Warehouse, 210-218 Penn Ave., Pittsburgh, Pa.**

#### HAMMERS.

Board drop, 1500 lb. Chambersburg.  
 Board drop, 2000 lb. Toledo.  
 Steam drop, 3000 lb. Morgan.

#### LATHES.

44"x30' Ffield, triple geared.  
 48" car wheel turning, m. d.  
 24"x12' S. B. & E., c. r., 18" chuck.  
 24" and 20"x10' LeBlond, q. c. g.  
 20"x 8' LeBlond, q. c. g., t. a.

#### PUNCHES, SHEARS AND ROLLS.

36" throat Whiting, 1"x1", arch, jaw.  
 40" throat Cleveland, cap. 1"x1".  
 15" tht., dbl., cap. 1 1/2"x1", No. 13 W.-W.  
 50" throat, cap. 1 1/2"x1", Cincinnati.  
 Guillotine shear, cap. 1", 2" & 2 1/2".

#### PLANERS, MILLERS AND SHAPERS.

72"x72"x26' Niles, 3 heads.  
 30"x30"x10' Sellers, 1 head.  
 24"x24"x 6' American, 1 head.  
 No. 2 Cleveland univ., near new.  
 No. 3 B. & S. univ., index head.

#### MISCELLANEOUS.

Bulldozers, No. 29-U, 6, 4 & 2 W.-W.  
 Drill, 8-spindle gang, Foote-Burt.  
 Drill, No. 310 Baker, hvy. d., cap. 2 1/2".  
 Drill, 28" back geared, power feed.  
 Drill, 24" Barnes, plain, sliding hd.  
 Pipe machines, 2", 6" and 8".

Quick shipments from stock.

Steam, 600, 700, 1000, 8000, 10000, 12000 and 14000 lb. double frame.  
 Helve, upright, 200 lb. Bradley.  
 18"x 8' American, geared head, t. a.  
 17"x 8' Sidney, q. c. g., d. b. g.  
 16"x 6' LeBlond, c. r., chuck.  
 Speed lathes, 15" and 13", 4' bed.

Slitting shear, rotary, 23" tht., cap. 1 1/2".  
 Squaring shear, 122", cap. 3-16".  
 Squaring shear, 26", cap. 16 ga., pwr.  
 Squaring shear, 53", cap. 14 ga.  
 Rolls, 10' Bertsch, cap. 14" gauge.  
 No. 3 Cincinnati plain.  
 16" Smith & Mills.  
 20" Steptoe crank, geared.  
 24" Cincinnati, crank, back grd.

Presses, Ferracute Nos. DGG-56, D-201, D-301 and EG-6, all st. sided.  
 Presses, Ferracute Nos. E-56 and E-57, toggle.  
 Presses, No. 20-B Bliss, o. b. i., 3" str.  
 Presses, No. 59 1/2, Toledo, 6" stroke.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Russell Machine Co., Inc., 28th St. & A. V. R. R., Pittsburgh, Pa.**

#### LATHES.

48"x16" bed lathe, compound rest.  
48"x16" Niles car wheel, m. d.  
38"x18" Pond, triple geared.  
30"x14" Marshall & Huschart.  
27"x12" Pittsburgh, dbl. b. g.  
26"x16" Draper, triple geared.  
26"x10'6" Walcott, q. c. g.  
24"x16" Johnson lathe.  
24"x12" Dietz, Schumacher & Boye.  
20"x10" Mueller, h. s., c. r.  
20"x8'6" Walcott, q. c. g., (3).  
19"x10' LeBlond, motor drive.  
19"x 8' LeBlond, q. c. g., heavy duty.  
18"x 8' Mueller, q. c. g., heavy duty.  
16"x 8' LeBlond, h. s.  
16"x 6' Prentice, h. s.  
14"x 6' LeBlond.  
9"x40" Barnes, foot power.  
14"x 5' American speed lathe.  
24"x11" American semi-auto. turret.  
14"x 5' Fox brass lathe.  
Speed lathes, various sizes, (10).

#### PLANERS AND SHAPERS.

27"x27"x8" planer, 1 head.  
30"x30"x9" Sellers, 1 head.  
35"x36"x12" Pond, three heads.  
72"x56"x12" Betts planer, 2 heads.  
16" Lodge & Davis shaper.  
16" Steptoe s. g. crank shaper.  
17" Economy s. g. crank shaper.  
20" Cincinnati b. g. crank shaper.  
20" G. & E. b. g. crank shaper.  
24" G. & E. b. g. crank shaper.  
28" G. & E. sgl. grd. crank shaper.  
26" Smith & Silk rack shaper.

#### DRILLS AND BORING MILLS.

Burke sensitive bench Nos. 0 & 1.  
14" Rockford sensitive drill.  
12" Fulton sensitive bench drill.  
No. 3 Prentice port. rope drive drills.  
20" Silver, new, plain and bk. gd.  
20" Foote-Burt mfrs. vertical.  
20" Barnes plain drill.  
20" Hofer drill, bk. gd.  
24" New Haven plain drill.  
38" & 40" New Haven drills.  
44" Bickford radial, box table.  
Garvin 4 spindle drill press.  
46" Niles car wheel boring mill.  
36" Bridgeport boring mill.  
42" Bullard vertical boring mill.  
42" Colburn vertical boring mill.  
76" Bullard vertical boring mill.  
72" Pond vertical boring mills.

#### HAMMERS AND MILLERS.

1500 lb. single leg steam forging.  
No. 0 Owen plain miller.  
No. 1 U. S. Improved hand miller.  
No. 1½ Kempsmith plain miller.

#### ENGINES AND BOILERS.

50 k. w. American steam elect. unit.  
4 h. p. Fowler vertical gas engine.  
50 h. p. vert. submerged tub. boiler.  
Climax engine, 6 h. p. boiler.

#### PUNCHES, SHEARS, PRESSES AND ROLLS.

50" throat Reade sgl. end punch and shear; massive construction.  
18" throat Rees s. e. punch.  
18" throat Rees s. e. shear.  
No. 3-A Royersford single end punch and shears.  
22" Bliss foot power sq. shear.  
No. 59½ Toledo d. g. straight column trimming presses.  
48"x1½" Wais & Roos sq. shear.  
No. 56 dbl. housing knuckle press.  
No. DG-76 Ferracute single acting.  
Straight-side punch press, 1" str.  
300, 500 and 700 ton Mesta forging presses, 1500 lb. pressure.  
Set hand forming rolls, 36"x2½".  
Toledo No. 365 gap rolling mill.

#### MISCELLANEOUS.

Air compressor, No. 0 Au-To 3"x4".  
Air compressor, s. cyl. 3x5", belted.  
Air compressor, double cyl. 2½"x4".  
Air compressor, Ingersoll-Rand Class "B" 10½"x12".  
Air compressor, Ingersoll-R. 6"x8".  
Bender, Wallace No. 11 angle, hd. pr.  
Bender, Hinman No. 1 Eye, hd. pr.  
Blower, Root No. 3 Acme, hand.  
Bolt cutter, 2" Acme, single head.  
Brazing table, all iron, 17"x29½"x31".  
Chain belt, 16"x8"x1½" p. and gear.  
Cold saw, Gliem, 22" diam. 6" cap.  
Crane, 10" I-beam, 12'3" span, with Harrington 6,000 lb. chain hoist.  
Grinders, Plymouth Nos. 13, 14 & 17.  
Grinder, Western No. 10.  
Grinder, 10" dbl. e. emery, on column.  
Grinder, Russell 12" dbl. end bench.  
Grinder, Barnes 20" wet tool.  
Grinder, 20" Ransom w. t., 250 v., d. c.  
Grinders, Landis 26x96; Cinti t. & c.  
Grinder, twist drill, cap. to 2½".  
Metal lockers, 10 sections.  
Motors, various types, 2 to 40 h. p.  
Pipe machine, E. C. & B. 2½" to 8", steam engine driven.  
Polishing stand, Diamond No. 2.  
Polishing stand, d. end, 42"x1½" arbor.  
Polishing stand, Cuyahoga dbl. end.  
Slotter, 24" Dill, new.  
Tapping machine, No. 2 Garvin.  
Vises, Forges, Pumps, Tanks.

## SECOND-HAND MACHINERY

### FOR SALE BY

**H. D. Warner,**

**57 May St., Hartford, Conn.**

Air compressors, Chicago Pneumatic, 750 cu. ft. capacity, (2).  
Automatic, 31" Gridley sgl.-spindle.  
Automatic, 11" Cleveland.  
Automatic, 42" Cleveland.  
Automatics, 24" Gridley mult.sp., (5).  
Automatics, 2" Cleveland, (2).  
Automatics, 31" Cleveland, (2).  
Broaching mchs., No. 1 Lapointe, (5).  
Bulldozer, No. 4 W. & W.  
Chuckling mche., No. 24 New Britain.  
Chuckling mche., No. 33 New Britain.  
Chuckling machine, No. 6 W. & S., chasing attachment.  
Drill press, Detroit horizontal.  
Drill press, 4-spindle, automatic feed and knock-off.

Hammers, drop, 800-lb. Billings & Spencer Model B, (2).  
Hammers, drop, 800-lb. Billings & Spencer Model D, (2).  
Hammers, drop, 1000-lb. Billings & Spencer Model B, (3).  
Lathes, Porter-Cable, (8).  
Milling machines, No. 2 Pratt & Whitney, Lincoln type, (5).  
Milling machines, Briggs, type A, (4).  
Press, Toledo No. 55.  
Roll threader, 11".  
Shear, alligator, capacity 2" sq., cold.  
Turret lathe, P. & W.  
Welder, Toledo spot, capacity 1/2".  
Welders, butt, (2).

### FOR SALE BY

**Herman L. Winterer,**

**943-53 N. Front St., Philadelphia, Pa.**

#### LATHES.

24-28"x14" Harrington extension gap lathe, raising blocks swing 60" with taper attach., m. d.  
32"x12" Pittsburgh, d. b. g., q. c. g.  
31"x14" Niles.  
28"x10" Niles, d. b. g., q. c. g., (2).  
27"x12" Bridgeford, d. b. g., q. c. g., (2).  
26"x11" Wickes, d. b. g., semi-q. c. g.  
25"x14" LeBlond.  
23"x10" Davis, d. b. g., q. c. g.

21"x10' 9" Fitchburg.  
22"x 8' Hamilton, d. b. g., semi-q. c. g., (2).  
21"x8' LeBlond, (5).  
20"x8' 6" Walcott, d. b. g., q. c. g., (2).  
19"x8' 6" Lodge & Davis.  
19"x10" Draper, patent head.  
18"x 7' Chard, dbl. back. gear, semi-quick change gear.

And many others.

#### TURRET LATHES.

3"x36" Jones & Lamson.  
7"x14" Potter & J. semi-auto., (2).  
No. 4 Warner & Swasey, Fox attach.  
24" Windsor turret with Fox attach.

No. 2 1/2 Garvin Monitor.  
No. 3 Bardons & Oliver, (2).  
11" h. s., 11" swing, Foster.  
And many others.

#### DRILL PRESSES.

40" Barnes horizontal radials, (2).  
36" Bickford radials, circular base, m. s., (2).  
24" Barnes, geared head.  
20" Barnes, geared head.

12" 6-spindle Allen sensitive, (2).  
12" 4-spindle Allen sensitive, (2).  
12" Allen bench.  
Plain drills, all sizes.  
Drill presses, assorted sizes.

#### MILLING MACHINES.

No. 6 Becker vert., table 18"x60".  
36"x8" Ingersoll horizontal slab.  
No. 5 Cincinnati, table 91"x50".  
No. 15 Garvin, table 12"x41".  
No. 15 Garvin, table 12"x42".  
No. 3H LeBlond univ., heavy duty.  
No. 3 Cincinnati, table 12"x46".

No. 3 Becker Brainard, table 12"x40".  
No. 2 Cincinnati univ., table 8"x35".  
Brown & Sharpe, 4"x28" universal table, (2).  
No. 3 Garvin hand, horizontal.  
Whitney hand.  
And many others.

#### MISCELLANEOUS.

Boring mill, 38" Beaman & Smith.  
Boring mill, 31" Newton car wheel.  
Grinder, disc, No. 17 Besly.  
Grinder, 12x25" Bath universal tool and cutter.  
Hammer, 900 lb. Billings & Spencer board drop.  
Hammer, 100 lb. Bradley helve.

Hammer, 100 lb. Merrill upright.  
Hammer, 60 lb. Bradley helve.  
Hammer, 60 lb. Belle, upright (2).  
Keyseater, 24" stroke Baker Bros.  
Keyseater, 18" stroke Morton.  
Punch presses, all sizes.  
Slotter, 10" Sellers.

Large assortment of General Machinery.

Send for complete list.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Niles-Bement-Pond Company,** - 111 Broadway, New York  
Located at our various factories and stores.

#### LATHES.

14"x 6' Bradford, c. r.	21"x8' LeBlond, geared head, heavy duty.
14"x 6' Whitcomb, taper, pan.	22"x 8' Niles, c. r.
15"x 7' P. & W. speed lathe.	26"x26' Niles, c. r.
16"x 6' Whitcomb, q. c.	28"x18' Niles, c. r.
16"x 6' Reed, r. & f. rest.	28"x30' Niles, c. r.
16"x 8' Bradford, c. r.	30"x14' Niles, c. r.
18"x 8' Prentice.	42"x20' Niles, c. r.
18"x 8' LeBlond, quick change.	

#### TURRET LATHES.

No. 6A Potter & Johnston automatic, motor drive.  
2"x24" Jones & Lamson, cone head.  
2"x24" Warner & Swasey, hollow hexagon.  
2"x26" Pratt & Whitney turret lathe.  
28" size J. Gisholt, 34" spindle.  
24" size I Gisholt, 220 volt, motor drive, d. c.  
28" Milwaukee rigid.  
34" size K Gisholt.

#### SHAPERS AND PLANERS.

14"x 6' Niles sgl. trav. head shaper.	38"x35"x12' Niles, 4 heads.
20" G. & E. crank shaper.	38"x38"x16' Niles, 3 heads.
24"x24"x 6' Powell, 1 head.	44"x44"x16' Niles, 4 heads.
30"x30"x 6' Pond, 2 heads.	44"x44"x20' Niles, 4 heads.
30"x30"x 8' Pond, 2 heads.	48"x48"x10' Niles, 4 heads.
30"x30"x10' Pond, 2 heads.	54"x54"x20' Niles, 4 heads.
30"x30"x12' Pond, 2 heads, 220 v., d. c., reversing motor drive.	60"x60"x20' Niles, 4 heads.
	72"x72"x24' Pond, hvy. forge, 3 hds.

#### MILLERS AND GEAR CUTTERS.

No. 3 Brown & S. univ., old style.	No. 4 36"x9" B. & S. gear cutter.
No. 2 LeBlond plain, single pulley.	No. 6 60"x12" B. & S. gear cutter.
No. 5 Brown & S. vert., old style.	15" Gleason bevel gear generator.
No. 3 36"x8" B. & S. gear cutter.	

#### DRILLING MACHINES.

32" Aurora, sliding head.	4' Niles semi-universal, old style.
60" Niles, heavy vertical.	4' Niles full universal radial.
3' Grant radial drill and boring mch.	5' Niles semi-universal, old style.
3' Mueller cone drive radial.	6' Niles semi-universal, old style.
4' Prentice speed box radial.	

#### GRINDERS.

No. 11 Brown & Sharpe internal.	12"x66" No. 4 Landis universal.
4"x30" No. 11 Brown & Sharpe pl.	29" grindstone frame, B. & S.

#### BORING MACHINES

No. 1 Bement horizontal, 23" spindle, 5' table.  
No. 2 Bement horizontal, 31" spindle, 6' table.  
No. 3 Bement horizontal, 48" spindle, 9' table.  
42" Niles boring and turning mill.  
60" Bement boring and turning mill.

#### MISCELLANEOUS.

Air compressor, type 10, Ingersoll-Rand, steam driven, capacity 535'.  
Air compressor, Ingersoll-Rand duplex, motor driven, with 35 h. p., d. c. motor, capacity 215'.  
Air compressor, Gardner duplex, steam driven, 837'.  
Blower, No. 10 Sturtevant.  
Blower, No. 70 Buffalo.  
Blue print mch., Wagenhorst, 60", vertical cylinder.  
Engine, 164 h. p. McEwen, direct connected to 100 k. w. generator, d. c. 220 v.  
Profiler No. 3 automatic, Keller.  
Saw. 8" rounds, Hi. ley.  
Slotter, 6" Bement.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Federal Machinery Sales Company,**

**8 N. Jefferson St., Chicago, Ill. 208 Sycamore St., Milwaukee, Wis.**

First-Class Bargains.

#### GEAR CUTTERS.

Used Lees-Bradner 14" gear generator.  
Used No. 1 and No. 2 Adams gear hobbors.  
Used 26" and 36" Brown & Sharpe spur gear cutters.

#### GRINDERS.

Used No. 1 Thompson cutter and tool grinder.  
Used Landis 12"x66" plain grinder.

#### LATHES.

Used 16"x6' Lodge & Shipley, with taper attachment.  
Used 14"x24" gap x 5' bed Barnes sliding bed gap lathe.  
Used Porter-Cable manufacturing lathes, (3).

#### MISCELLANEOUS.

Broaching machine, No. 3 Lapointe, used.  
Pipe machine, 4" Victor, used.  
Shaper, 12" Hendey, used.

### FOR SALE BY

**The E. A. Kinsey Co., Cincinnati, Ohio, Indianapolis, Indiana**

#### DRILLING MACHINES.

3' Fosdick radial drill.	1" type T., U. S. Elect. 220 v., 60 cy.
Fosdick, plain radial, box column.	Bausch 4-spindle multiple.
1" type BA-1 U. S. Electric, 220 volts,	20" Barnes, lever feed.
60 cycle, 3 phase.	

#### GRINDERS.

16x36 Queen City plain.	8-spindle Cock grinder.
Brown & Sharpe plain, universal table, capacity 18"x10'.	Norton No. 1 universal grinder.
No. 2 Cincinnati univ., complete.	Water tool, 26 in. wheel.
14" J. C. Blount wet tool.	Wesche electric buffing, a. c. motor.

#### LATHES.

10x5' Champion engine, plain rest.	20"x3' Fay & Scott, hex. turret on shears.
14"x6' Monarch, d. b. g., c. r.	20x10' Bradford, 2 c., c. r.
14"x8' Bradford, p. t., turret, pan bed.	21x8' Bradford engine, 18" 4-jaw chk.
18x10' LeBlond engine, q. c., 16" chk.	25x10' LeBlond engine, q. c., 24" chk.

#### PLANERS.

18' Niles-B.-P. plate, 1" steel plate.	54-54x30 H. P. Betts; rev. d. c. motor.
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#### TURRET AND SCREW MACHINES.

No. 1 Am. Tool & M. Co., sq. ar., s. b. g., 4 s. c.	No. 2 Garvin, w. f., power feed turret, automatic chucks.
No. 2 Warner & Swasey, (2).	

#### MILLING MACHINES.

No. 2-B B. & S. plain.	No. 13 Brown & Sharpe plain.
48" Newton plain.	No. 6 Whitney hand miller.
Newton 21"x6" double housing slab.	

#### MISCELLANEOUS.

Band saw, 36" Towsley, with motor.	Gas furnace, No. 93 Stewart dbl. end.
Bolt cutter, 24" Acme, dbl. spindle.	Gear cutter, 26" No. 3.
Boring mill, 42" Niles, 2 heads.	Gear tester, B. & S., complete.
Boring mill, Pond vertical, 8' table, 11' between uprights.	Oil pump, Trahern No. 1 F. rotary.
Boring and milling machine, No. 2 Fosdick horizontal.	Profiler, Pratt & W. No. 12, belt.
Centering att., Carroll No. 2, cap. to 2".	Saw bench, Beach, table, 36x54".
Chain machine, Cross & Spiers.	Special internal grinding fixture, Brown & S., for No. 1 universal.
Chuck, 12" universal.	Tapping machine, Garvin No. 1.
Cutting-off mch., 3" Hurlbut-Rogers.	Vise, flanged, Brown & Sharpe No. 4.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Stocker-Rumely-Wachs Co.,**

**117-121 N. Jefferson St., Chicago**

In stock for immediate delivery.

### BORING MILLS.

Industrial Works horizontal, 24" bar.

60" Bullard, 2 plain heads.

76" Bullard, 2 plain heads.

### DRILLING MACHINES.

12" Leland Gifford, h. s., ball bearing, single spindle.

No. 4 Avey, h. s., ball bearing, single spindle.

Henry & Wright, h. s., ball bearing, single spindle, class B.

Henry & Wright, h. s., ball bearing, four spindle.

Henry & Wright, h. s., ball bearing, six spindle.

60" Bickford, back geared, power feed.

5' Fosdick radial drill.

6' Gang radial drill.

6' Prentice radial drill.

### GEAR CUTTERS.

30"x8' Gould & Eberhardt.

8" Gleason automatic.

### GRINDERS.

No. 1 LeBlond cutter and tool grinder.

No. 1 Cincinnati cutter and tool grinder.

No. 12 Brown & Sharpe universal grinder.

No. 1 Brown & Sharpe universal grinder.

6"x32" Norton grinder.

8"x40" Morse grinder.

No. 12 Modern grinder.

No. 10 Besly disc grinder.

8" Heald piston ring.

### LATHES.

13"x 7' Willard, compound rest, double back gear.

13"x 8' Willard, compound rest, double back gear.

20"x10' Hamilton double back gear, compound rest.

24"x12' Schumacher & Boye, compound rest.

30"x12' Blaisdell, compound rest.

32"x18' Bradford, compound rest.

37"x18' Fifield, compound rest.

68"x16' Engine lathe, face plate drive.

### MILLING MACHINES.

No. 3 Burke hand miller.

No. 6 Rockford plain miller.

No. 2 LeBlond plain miller.

Type "B" Briggs miller.

No. 4 Cincinnati vertical miller.

No. 5 Hende, Lincoln type miller.

No. 13 Brown & Sharpe.

No. 4 Van Norman duplex.

No. 3 Becker vertical with rotary.

### SCREW MACHINES.

No. 6 Foster, friction head, auto. chuck and wire feed, power feed to turret.

No. 9 Bardons & Oliver, friction head, automatic chuck and wire feed, power feed to turret.

24" Gisholt turret lathe.

2"x24" Jones & Lamson turret lathe.

3"x36" Jones & Lamson turret lathe.

Potter & Johnston turret lathe.

### MISCELLANEOUS.

Band saw, Fay & Egan, heavy duty.

Planer, 42"x50"x12' Gray, 2 heads.

Saw, 9"x9" Racine.

Shop saw, No. 5 Marvel.

Slotter, 18" Canadian Machinery Corporation.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Badger-Packard Mchy. Co., 133-139 W. Water St., Milwaukee, Wis.**

#### GRINDERS.

No. 3 Diamond Wet Tool, 24" whl.  
Gorton dbl. disc., belt driven.  
72" Holmes auto. knife.  
10x20 Landis universal.

Sterling universal tool & reamer with universal equipment, 95% new.  
Cleveland profile with motor for a. c. or d. c., practically new.

#### LATHES.

13"x 7' Shepard 3 s. c., s. b. g., l. c. g.  
14"x 6' Lathe & Morse 4 s. c., s. b. g., l. c. g.  
16"x 6' Reed plain turning not screw cutting.  
16"x 8' Goddard 5 s. c., s. b. g., l. c. g.  
20"x 8' American, 3 s. c., d. b. g., q. c.  
20"x 8' Flather 3 s. c., s. b. g., l. c. g.  
20"x10' Bridgeport 4 s. c., s. b. g., l. c. g.

#### MILLING MACHINES.

No. OB Fox hand & power feed.  
Whitney hand miller.  
26x10 Hendey Lincoln.

13x50 Hendey Lincoln.  
Briggs high duty, type A 16".  
10" Pratt & Whitney auto. milling.

#### MISCELLANEOUS.

Drill, 12" 2-spindle sensitive.  
Drill press, 20" Snyder.  
Gear cutter, 36"x9" Gould & E.  
Gear cutter No. 2, Whiton auto.  
Glue heater, atm., 100 gal. Advance.  
Hammer, power, 50 lb. Mayer.  
Hammer, drop, 100 lb.

Pipe machine, No. 4 Loew Victor, 4" capacity.  
Planer 24"x24"x16" Fitchburg.  
Purifier, 30"x6" Buffalo, closed pat.  
Screw mch., 14x17 Hartford auto.  
Shaper, 16" Niles, b. g. c.  
Steam pump, 5x2x6 Bara duplex.

### FOR SALE BY

**Chas. Molitor Machinery Co.,**

**124 S. Clinton St., Chicago, Ill.**

#### LATHES.

26"x12' Putnam, heavy duty, qu. ch.  
36"x14' Putnam.  
28"x10' American, quick change.  
21"x 8' LeBlond.  
20"x 8' Lodge & Shipley, qu. change.  
22"x10' Hamilton, q. c., d. b. g., (2).  
22"x10' LeBlond, quick change.

22"x12' Porter.  
20"x14' Prentice.  
20"x10' Lodge & Shipley, qu. ch.  
20"x 8' Davis, dbl. back geared, (2).  
16"x 6' Hendey, quick change, taper.  
15"x 8' Chard, (2).

#### PLANERS AND SHAPER.

33"x33"x 8' Gray.  
48"x48"x12' Flather, 3 heads.

24"x24"x 6' Pond, 2 heads.  
28" Smith Mills gear frict. shaper.

#### GRINDERS.

No. 60 Heald grinder, new.  
No. 4 B. & S. universal.  
10"x30" Landis.  
Miller and Grinder, Saxon vertical.

18"x9' Landis automatic.  
12"x32" Landis.  
Rotary grinder, N. Y. Safety Co.  
22"x3" Wells.

#### MILLING MACHINES.

No. 3A Brown & Sharpe universal.  
No. 2A Brown & S. univ., hvy., (2).  
No. 2 Brown & Sharpe universal.  
No. 2 Cincinnati plain.

No. 3 Becker vertical.  
No. 25 Becker plain back geared.  
No. 2 Kempsmith plain.

#### PUNCH PRESSES AND HAMMERS.

Waterbury fdry. adjustable stroke.  
16" triple back geared, (3).  
20" to 34" single and double crank arch presses Adrian & Crosby, (4).

No. 3 Royersford double punch and shear.  
500 lb. drop hammer.

#### SCREW MACHINES AND TURRET LATHES.

2" Pratt & Whitney.  
No. 4 Foster, (6).  
1 1/2" Acme, (2).  
1" Smurr & Kamen, (3).  
1" Milholland.  
3" Jones & Lamson, (2)

16" Gisholt special heavy, (6).  
No. 4 Warner & Swasey, (4).  
1 1/2" Superior.  
1" Pratt & White, (6).  
22" Greenlee, (4).  
24" Libby.



## SECOND-HAND MACHINERY

### FOR SALE BY

**Harris Brothers Company, 1475 W. 35th St., Chicago, Ill.**

#### ENGINE LATHES.

Triple geared, screw cutting:

48"x30" Fifeild, 25" center.

Screw-cutting quick change mechanism, 3-step cone, dbl. bk. grd., comp. rests:  
18"x 6" Ryerson, (4). | 20"x10" Canada Machy. Corp., (5).

With turrets on carriage with compound rests:

18"x 6" Canada Machy. Corp., (2). | 20"x 8" McDougail, (3).

With loose change gears, 3-step cones, dbl. back grd., and compound rests:

18"x 8" Sidney, (3). | 18"x 8" Milwaukee, (6).

With loose change gears, compound rests, single back geared:

18"x 6" Cincinnati. | 21"x 7" Bertram.

18"x 6" Giddings & Lewis, (4). | 10" Wells speed lathes, (10).

Plain turning lathes with plain rests. (Not screw cutting):

16"x 6" Rockford, pan bed, (10). | 20"x 8" Simplex, (4).

With turret on carriage but without plain rest:

18"x 8" Milwaukee, (10).

All the above lathes have hollow spindles and countershafts.

#### DRILL PRESSES.

Colburn 25" heavy duty, high speed, No. 5 Morse taper, sgl. pulley drive, (9).  
8-spindle 40" Bausch adjustable multiple-spdl. drill, capacity 1" and 20" circle.

#### GRINDERS.

Wells Bros. cutter and reamer. |  $\frac{1}{2}$  h. p. Electric grinders, (5).

Ford Smith cylindrical grinders, (2).

#### TURRET LATHES.

W. P. Davis 24" swing set over turret, all power feeds, (2). | Jones & L. 3"x36" bar outfit, (3).

#### MILLING MACHINES.

Hendey Lincoln type Millers with quick change feed, 20" automatic feed to table, (25).

No. 2 & No. 3 Brown & Sharpe universal.

#### SLOTTER.

20" Niles vertical slotter with rotary table.

#### SHAPERS.

20" Cincinnati bk. grd. shaper, p.d.f. | 20" P. N. A. open-side shaper.

#### PUNCH PRESSES.

Williams straight sided, b. grd., sgl. action punch press, 22" between uprights.

#### HAMMERS.

Board lift drop hammers, 1000 lb., (2). | Board lift drop hammers, 2000 lb., (2).

#### PUNCHES AND SHEARS.

Alligator shear for 14".

Wiener steel plate "1" beam shear for 15" "I" beam.

Hilles & Jones sgl. end punch, 8" throat, architectural jaw, cap.  $\frac{1}{4}$ " thru  $\frac{1}{2}$ ".

Williams & White gate shear and multiple punch, 37" between housings.

#### BENDING ROLL.

8' Lennox plate bending roll,  $\frac{1}{4}$ " cap., drop end housing, friction clutch drive.

#### TRAVELING CRANE.

Niles electric traveling crane, 46' span, 15 ton cap., with auxiliary hoist, 5 ton, 4 motor type, 220 d. c.

Our complete Machinery Bulletin sent upon request.

## SECOND-HAND MACHINERY

### FOR SALE BY

**B. C. Allen Machinery Co.,**

**104 S. Clinton St., Chicago**

Blower, No. 4.....	\$ 35.	Miller, No. 1 P. & W., hand.....	\$ 100.
Die grinder.....	80.	Miller, No. 5 Burke, hand.....	285.
Drill press, 15" Barnes.....	75.	Miller, Steptoe, hand.....	400.
Drill press, bench.....	25.	Miller, Wisconsin, hand ver. att.	250.
Drill press, 14" sensitive.....	45.	Miller, No. 1 plain.....	475.
Drill press, 20" b. g.....	135.	Miller, No. 4 Garvin.....	225.
Drill press, 24" b. g.....	165.	Miller, No. 2 Garvin, q. c. g.....	825.
Drill press, 26" power feed.....	175.	Miller, Lincoln, b. g.....	150.
Drill press, 20" Barnes, 3-sp.....	350.	Miller, Lincoln, q. c. g., Hendey	300.
Drill press, 13" 3-spindle.....	100.	Pipe machine, Jarecki 2".....	165.
Drill pr., 14" Leland G. hi-spd.....	175.	Planer, 22x22x5' Fitchburg.....	280.
Drill press, 14" Allen hi-speed	180.	Planer, 27x27x7' New Haven..	350.
Drill press, 24" sliding head,		Planer, 48x48x12', 3 heads.....	4600.
b. g., p. f., tapping attach.....	425.	Punch press, No. 1.....	125.
Emery grinders, Nos. 1, 2, 3 & 4.		Punch press, No. 3, inc.....	350.
Lathe, 15"x8' Walcott, tap. att.	425.	Screw machine, 1" P. & W.....	225.
Lathe, 16"x8' Walcott.....	425.	Screw machine, Bardons & O.,	
Lathe, 26"x9' Bridgeford, heavy		fric. hd., power feed to turret	450.
duty, q. c. g., d. b. g.....	950.	Shaper, 14" geared.....	250.
Lathe, 36"x16' Putnam.....	1000.	Shaper, 24" geared.....	450.
Lathe, 2"x24" J. & L. fric. hd.	350.	Tinners' tools.....	

### FOR SALE BY

**A. D. White Machinery Co.,**

**108-114 N. Jefferson St., Chicago**

#### ENGINE LATHES.

16"x12' Beaman & Smith.	22"x10' Davis, d. b. g., q. c., (3).
16"x 7' Chard, d. b. g., p. c.	24"x10' Putnam.
18"x 8' Bell, d. b. g., p. c.	28"x 8' Prentice, d. b. g., p. c.
18"x10' Reed.	30"x10' Pond.
20"x 8' Reed.	34"x10' Putnam.
20"x 8' Boye-Emmes, d. b. g., q. c.	38"x14' Finfield.

#### MILLING MACHINES.

Briggs type A. (2).	No. 5-B Becker vertical.
No. 1-Y Brown & Sharpe.	Newton slab, table 13"x65".
No. 6 Brinard, Lincoln.	Ingersoll slab, 22"x5'.
Model AB Becker, vertical.	

#### TURRET LATHES AND SCREW MACHINES.

No. 3 Foster, plain head.	No. 3 Stecher, hand, (6).
20"x5' Bridgeport, (2).	7/16" Cleveland, ratchet feed.
20"x8' Fay & Scott universal.	1/2" Cleveland, semi-auto.
22"x5' Reed.	1/2" Cleveland, friction.
21" Gisholt.	1/2" Cleveland, friction.
24" Gisholt, big bore.	1/2" Cleveland, jigger.
3x36" Jones & Lamson.	1/2" Hartford, (2).
16"x5' Dreses Fox Monitor.	1/2" Cleveland, jigger.
18"x6' American Fox monitor.	1 1/2" LaVigne.
18"x6' Springfield Fox monitor	No. 1 Brown & Sharpe, 1/2" cap., (3).
No. 1 Garvin, hand, (6).	

#### DRILLING MACHINES.

36" Mueller plain radial.	42" Miles plain radial.
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#### PUNCHES AND SHEARS.

19" throat geared punch.	No. 37 Williams & W. gang punch.
No. 6 L. & A., 4" throat cap. 1/2".	

#### MISCELLANEOUS.

Bolt cutter, 1 1/2" double hd., Adams.	Oil gas generator, No. 3 American.
Blower, No. 7 Sturtevant high press.	Press, No. 22 Bliss.
Gas engine, 35 h. p. Columbus.	Profiler, 2 spindle Putnam.
Gas engine, 55 h. p. Bruce McBeth.	Saw, No. 3 1/2 Nutter-Barnes.
Grinders, No. 2 Woods tool & cutter	Shaper, 16" Gould & Eberhardt.
Grinder, Springfield, 2-wheel water.	Shaper, 20" Hamilton.
Grinder, Leland & F., water.	Tube cutter, No. 5 Fox.
Hammer, 500-lb. Sandage.	

## SECOND-HAND MACHINERY

### FOR SALE BY

**Brown-McDonald Machinery Co., 2323 N. 9th St., St. Louis, Mo.**

#### BORING MILL.

42" Bullard, vertical, 2 swivel heads, 1 turret, 1 plain, used.

#### LATHES.

13"x 6' South Bend, c. r., h. s., new.

15"x 8' South Bend, c. r., h. s., new.

16"x 8' South Bend, c. r., h. s., new.

16"x 8' Walcott, q. c. g., d. b. g., c. r., h. s., new.

16"x 8' American, q. c. g., used.

20"x10' Walcott, q. c. g., d. b. g., c. r., h. s., new.

20"x10' Walcott & Wood, h. s., cpd. r., used.

14"x 6' Fitchburg, s. s., p. r., used.

#### DRILLING MACHINES.

No. 1 Burke, bench, with chucks, new.

14" Excelsior, 2 tables, new.

4" Leland Gifford, high speed, with pump.

20" Silver, s. b., w. & l., new.

20" Silver, s. b., b. g., p. f., new.

20" Champion, s. b., w. & l., new.

20" Champion, s. b., b. g. & p. f., new.

36" Aurora, b. g., p. f., new.

#### SHAPERS.

16" Whipp, single gear, new.

20" Milwaukee, b. g., latest imp., new.

18" & 24" Hollingsworth, new.

24" Gould & Eberhardt, used.  
Rhodes Nos. 1 and 3 horizontal and vertical, new.

#### SCREW MACHINES.

No. 4 Smurr & Kamen, geared friction head, p. f. to turret, new.

No. 4 Defiance, geared friction head, p. f. to turret, used.

No. 52 National Acme automatic, used.

Wood Tilted Turret 14", used.

#### MILLING MACHINES.

No. 2 American Lincoln, b. g., new.

No. 1 U. S. hand, vise and arbor, new.

No. 2 Pratt & Whitney, Lincoln type, used.

#### PRESSES.

No. 1 Loshbough-Jordan, o. b. i., new.

No. 3 Loshbough-J., o. b. i., new.

No. 4 Loshbough-J., o. b. i., new.

No. 3 Kohler, o. b. i., used.

No. 1 Greenerd, arbor, used, (9).

No. 2 Greenerd, arbor, used, (6).

#### SAWS.

Nos. 1 & 2 Marvel, draw cut, new.

Williamson, metal, used.

#### GRINDERS.

Nos. 1, 2 & 3 Western, d. e., new.

Nos. 1, 2 & 3 St. Louis, d. e., new.

No. 20 Safety E. W. Co., elec. (4).

U. S., electric, 110 v., d. c., bench.

Essley, cylindrical.

No. 190 Wells, reamer & cutter, new.

Greenfield univ. tool & cutter, used.

Nos. 1 and 2 American, surface, new.

#### COMPRESSORS.

Nos. 2, 3 & 4 Model B, vertical, belted, new.

Curtis 8x8 double cylinder, belt drive, (2).

#### MISCELLANEOUS.

Bolt threader, No. 734 Greenfield, new.

Filing mche. No. 2 Cochran-B. used.

Motor, 5 h. p. General Electric, 3 ph., new.

Motor, 10 h. p. General Electric, 3 ph., new.

Motor, 1 h. p. Advance, sgl. ph., new.

Pipe cutter, B. & K., 4" cap.

Pipe mch., No. 86 Forbes, 4", used.

Pipe machine, No. 76 Forbes, 3", used.

Pipe machine, 3" Borden, hand.

Planer, 36"x36"x15' Patch, o. s., 1 hd.

on cross rail, 1 head on side, used.

Riveter, No. 3 Hilles & Jones,

stake, used.

Large stock of tinnern's tools.

#### CHUCKS.

5" & 9" 3-jaw Sweetland, scroll, new.

8-12-14-16" 4-jaw Sweetland, independent, new.

No. 18 National Acme, s. o., die hd.

5", 6", 7", 9" 3-jaw Cushman, universal, used.

## SECOND-HAND MACHINERY

### FOR SALE BY

**A. M. Stoehr, - - 512 N. La Salle St., Chicago, Ill.**

Lathes, 18"x8' (3) and 18"x10' (5), quick change gear.

Milling machine, No. 5 Newton plain back geared.

Milling machines, Hendey, Lincoln type, (3).

Punch and shears, No. 14 W. W. Co., (2).

Riveters, Shuster, one each  $\frac{1}{2}$ " and  $\frac{3}{4}$ " capacities.

Other Lathes, Drills and Punch Presses.

Air Compressors, Tanks and Boilers.

Wire or write your requirements.

### FOR SALE BY

**Girard Machine & Tool Co., 491-493 N. Third St., Philadelphia, Pa.**

Engine lathe, 37 $\frac{1}{2}$ "x23' I. H. Johnson, triple geared and geared face plates, with two sets of raising blocks 49" to 61".

Engine lathe, 28"x12' Fitchburg, double back geared, 7' between centers.

Engine lathes, 26"x13' Wickes, double back geared, heavy duty, q. c. (2).

Engine lathes, 26"x10' Bridgeport, d. b. g., q. c., 4' centers (2).

Engine lathes, 21"x11' Lodge & Davis, taper attachment, 7' centers.

Engine lathes, 20" x 8' Lodge and Shipley, d. b. g., q. c., 4' centers, (2).

Engine lathes, 18"x8' Lodge & Shipley d. b. g., q. c., tap. att., 4' centers.

Engine lathes, 18"x 6' American, d. b. g., q. c., heavy duty, (12).

Engine lathe, 18"x 8' Milwaukee, d. b. g., q. c., heavy duty.

Engine lathes, 17"x6' LeBlond, d. b. g., q. c., heavy duty, (10).

Lathes, 12", 14" and 16" quick change, with various size beds.

Grinder, No. 1 Cincinnati, univ. cutter and reamer, standard equipment.

Grinder, No. 2 Bath universal cutter and reamer, with standard equipment.

Grinder, No. 2 Brown & Sharpe universal cutter & reamer, standard equip.

Planer, 24"x24"x5' Pond planer, one head.

Shapers, 20" Kelly, 16" Gould & Eberhardt, 24" Barker, b. g., late type.

Turret lathes, 2x24 Jones & Lamson, bar equipment; 21" and 23" Gisholt.

Large lot of Screw Machines, Drill Presses, Punch Presses, etc.

Send for our List.

### FOR SALE BY

**E. L. Esley Machinery Co., 551-557 Washington Blvd., Chicago, Ill.**

#### DRILL PRESSES.

8' Niles full universal radial.

No.  $\frac{1}{2}$  Avey single spindle.

20"x4 spindle Barnes all geared gang.

No. 2-D 24" Minster, heavy hut.

#### GRINDERS.

No. 1 Cincinnati, universal.

No. 190 Wells cutter and reamer.

No. 1 Norton univ. cutter & reamer.

No. 2 10"x32" Ott universal.

#### LATHES.

14"x10' LeBlond, q. c. g.

16"x 8' Von Wyck, taper att.

17"x 5' LeBlond heavy duty.

18"x 8' Bradford, q. c. g., taper att.

20"x 8' Hamilton.

22"x12' Greaves & Klusman.

24"x12' Prentice Bros.

36"x14' Bradford.

#### SCREW MACHINES.

$\frac{3}{4}$ " Cleveland full auto.

No. 1 Garvin, plain head, (5).

No. 5 Pearson, hand, fric. head.

1"x15" Pratt & Whitney, plain head.

No. 3 Foster, plain head (7).

No. 4 Foster, plain head (5).

1 $\frac{1}{2}$ " Milwaukee friction head, new.

$\frac{3}{4}$ " Smurr & Kamen, plain head.

#### MISCELLANEOUS.

Boring mach., No. 0 Fosdick.

Broaching machine, No 3 Lapointe.

Cold saw, No. 14 Higley.

Gear cutter, No. 3 B. & S. auto.

Miller, No. 1 $\frac{1}{2}$  Garvin, 2 sp. Duplex

horizontal.

Miller, No. 2 $\frac{1}{2}$  Hendey, Lincoln type.

Planer, 32"x32"x8' New Haven.

Planer, 32"x32"x12' Davis & Egan.

Planer, 42"x42"x8' Whitcomb.

Punch, Sellers single end, 26" thr.

Turret lathe, 2"x24" J. & L.

## SECOND-HAND MACHINERY

### FOR SALE BY

**The Burke Machine Tool Co.,** **Conneaut, Ohio**

### GAS ENGINE.

One 40 h. p. tandem Elyria gas engine, in good condition.....\$200.

### FOR SALE BY

**Frank H. Parker Company,**

**First Nat'l Bank Bldg., Chicago, Ill.**

Bending roll, 10'— $\frac{1}{2}$ " capacity.....\$2500.  
Grinder, No. 3 La Salle surface 200.  
Grinder, No. 60 Heald, new..... 2000.  
Hammer, 35 lb. W. & W. Justice 200.  
Hammer, 50 lb. belt, drop..... 100.  
Hammer, 90 lb. W. & W. Justice 400.  
Lathe, 11"x 4' Rockford..... 125.  
Lathe, 25"x12' LeBlond, q.c.g. 1200.  
Lathe, 25"x22" c. r., s. s. .... 600.  
Lathe, 28"x16" s. s., p. r. .... 300.  
Lathe, 42"x16" c. r., s. s. .... 800.

Magnetic chuck, 12x24 Heald..... 200.  
Oil engine, 50 h. p., 1 h. c. .... 1300.  
Punch presses, No. 35P Toledo, new..... 1100.  
Punch and shear, d. end  $\frac{1}{2}$ "x $\frac{1}{2}$ " 300.  
Punch and shear, No. 17 W. & W.,  $\frac{1}{2}$ "x $\frac{1}{2}$ " 800.  
Shaper, 24" Hendey, belt shift 250.  
Shear, 10' sq., pwr., cuts 14 ga. 1100.  
Tackle, 5 ton duplex, Y. & T. 100.  
Send us your inquiries.

### FOR SALE BY

**The Osborne & Sexton Machinery Co.,**

**Columbus, Ohio**

### LATHES.

9" to 13" Barnes, h. s., cp. r., new.  
12-15-16 and 18 O. & S., h. s., c. r., new.  
14"x 8' Monarch, hol. spdl., c. r.  
18"x 8' Fitchburg, hol. spdl., cp. r.

19"x12' Gray, compound rest.  
20"x10' Hamilton, double back gear.  
21"x10' and 24"x12' South Bend.  
25"x24' Fifeild.

### TURRET LATHES AND SCREW MACHINES.

No. 52 to 56 National Acme.  
No. 2 W. & S. hollow hexagon.  
Wells hand screw machine.  
1" Garvin hand screw machine.

18" S. & K. hand screw mches., (3).  
14" Tilted turret hand screw mche.  
2x24 & 3x36 J. & L., dbl. equipment.  
4" Hartford single spindle auto.

### SHAPERS AND PLANERS.

14" Niles, traveling head.  
16, 18 & 24" Barker, back gear crank.  
16" Kelly crank, back geared.

22"x22"x 6' Gray, 1 head.  
32"x32"x10' Niles, single head.  
60"x60"x17' Betts, double head.

### PRESSES.

No. 210 Stiles & Parker, 120,000 lbs.  
No. 19 Bliss, b. g., fdg. att.  $\frac{3}{4}$ " str.  
No. 32-P Toledo, (2).

No. 194 Bliss, with feeding attach.  
Perkins, dbl. crank, 16x24 bolster.  
Covington, 10' 6" between housing.

### DRILLS AND RADIALS.

Henry & Wright sgl. spdl., high spd.  
34' Canedy-Otto plain, new.  
4' Baush plain, heavy pattern.  
44' Universal, cone drive.  
Sensitive 1, 2 & 3 spindle.

High speed sgl. spdl. Cleveland.  
20" Aurora, with tap. attachment.  
20", lever feed, (30).  
24", 26" and 28" sliding head.  
Quint 6-hole turret drill.

### MILLING MACHINES.

No. 2 Kempsmith plain, (2).  
No. 25 Becker plain, (3).  
Ames, Lincoln type, 10"x40" table.

No. 12 Brown & Sharp.  
No. 4 Cincinnati universal.  
No. 3 Brainard, 30x7 table.

### GRINDERS.

No. 3 W. & M. wet surface.  
6x18 Landis, plain.  
Capital, internal, practically new.  
Landis 10x24 universal.

Litter 10x20 universal.  
30x10 Webster & Perks, univ., new.  
Cutter, reamer and tool, new.  
Cincinnati cutter and tool.

### MISCELLANEOUS.

Balancing machine for pulleys.  
Band saws, metal, 30" Wright, (2).  
Boring mill, 12', 2 swivel heads.  
Cold saw, Higley No. 114.  
Compressor, 8"x8" H. & B. belt.  
Cut-off machine, 3" Davis.  
Dynamo, plating, 2500 amp., 8 volt.

Hammer, 40 & 200 lb. Bradley helve.  
Hammer, 55 Williams White Justice.  
Motor, 75 h. p., 220 volt, 3 phase.  
Pipe machines, 4, 6 and 12".  
Pulley lathe, 60" Stevens.  
Punch and shear, single  $\frac{1}{2}$ "x $\frac{1}{2}$ ".  
Shear, 10' 6" Covington 3/32" plate.

## SECOND-HAND MACHINERY

### FOR SALE BY

#### E. B. Stickley Machinery Co.

Drill presses, 12" Leland & G., (4).  
 Drill press, 1x6" Baker Bros. auto.  
 Forcing press, 30 ton Lucas vert.  
 Gear shapers, 36" Fellows, (3).  
 Gear tooth rounders, 12" Ingle.  
 Gear cutter, 2 B Newark 24", spurs  
 and bevels.  
 Grinder, cylinder, No. 23 Brown & S.  
 Grinder, plain, 12x42 Landis.  
 Grinder, plain, 16x66 Landis.  
 Milling machine, No. 0 Rockford pl.

#### Goebel Bldg., Detroit, Mich.

Milling machine, Barber-Coleman,  
 vertical, continuous.  
 Milling mche., No. 8 Becker duplex.  
 Milling machine, No. 4 B. & S. pl.  
 Milling mch., slab type. 42"x42"x12'  
 Ingersoll.  
 Riveter, Hanna pneumatic, 1" cap.  
 Turret lathes, No. 24 New Britain  
 semi-automatic, (2).  
 Turret lathe, No. 54 New Britain  
 semi-automatic.

### FOR SALE BY

#### Cleveland Belting & Mchy. Co., 1922 Scranton Rd., Cleveland, O.

##### MACHINE TOOLS AT TOLEDO, OHIO

Air cylinders, 9" (3).  
 Air cylinders, 11", (29).  
 Air hoists, 8x8, (2).  
 Air hoist, 14x8.  
 Annealing furnaces, Quigley, (2).  
 Drill presses, Baker Bros., (2).  
 Grinders, Townsend, (12).  
 Lathe, turret, 16"x8".  
 Lathes, turret, 18"x8", (12).  
 Oil pump.

Press, foot power.  
 Pump and accumulator.  
 Roller marking machines, (2).  
 Shaper.  
 Spraying machine.  
 Tank, 3-barrel.  
 Tanks, 10-barrel, (2).  
 Thread millers, (5).  
 Tool hardening furnace.  
 Vises, drill press, (2).

821 Files—600' Pipe—2500' Copper Wire.

### FOR SALE BY

#### Frank Toomey, Inc.,

#### 127-131 N. Third St., Philadelphia, Pa.

##### LATHES.

13"x 5'6" new Carroll-Jamieson, p.c.  
 15"x 6' new Sidney, q. c., swings 17"  
 17"x 8' new Sidney, q. c., swings 19"  
 19"x 8' new Sidney, q. c., swings 21"  
 19"x 8' LeBlond, q. c.

20"x 8' Whitcomb Blaisdell, q. c.  
 25"x14' new Sidney, q. c., swings 27"  
 26"x12' Bridgeford, q. c., d. b. g.  
 36"x16' New Haven, quick change.  
 42" Niles car wheel lathe.

##### VERTICAL BORING MILLS.

42" Niles car wheel.

##### PLANERS.

36"x36"x13' Rockford, four heads.  
 36"x36"x12' Flather, two heads.  
 36"x36"x 8' Gray, two heads.

31"x23"x68" Smith, one head.  
 18"x18"x 3' Wheeler, one head.  
 40"x40"x10' Powell, two heads.

##### SHAPERS.

14" new Steptoe.  
 14" Smith & Mills, new.

16" Smith & Mills, new.  
 15" Hendey, used.

##### MILLING MACHINES.

No. 4 Brown & Sharpe, plain.  
 No. 1 1/2 new American, plain.  
 No. 3A Garvin, universal.  
 No. 6 used Whitney, hand.

No. 1 1/2 used Valley City, plain.  
 No. 1 new United States, hand.  
 No. 2 Cincinnati, plain.  
 No. 2 Van Norman duplex.

##### DRILLING MACHINES.

72" Western, full universal.  
 36" new Superior, sliding head.  
 32" new Superior, sliding head.  
 28" new Superior, sliding head.

25" new Superior, sliding head.  
 48" Dreeses plain radial.  
 25" Barnes b. g., p. f.  
 1, 2 & 4 spindle, Allen.

##### POWER PRESSES.

No. 78 1/2 Bliss f. g.  
 No. 64 Consolidated, new.

No. 138 Max Ams, new.  
 No. 434 Max Ams, used.

## SECOND-HAND MACHINERY

### FOR SALE BY

**The Wm. T. Johnston Co.,** 3rd & Vine Sts., Cincinnati, Ohio  
Drill presses, 20 and 24 Foote-Burt, heavy, (9).  
Gear cutters, automatic, B. & S., (9).  
Lathes, second hand, (75).  
Milling machines, (12).  
Planers, (3).  
Shapers, (7).

### FOR SALE BY

**Peninsular Machinery Co.,** 281 E. Jefferson Ave., Detroit, Mich.  
Drill, 20" Rockford, back geared  
Drill, 23" Rockford, back geared.  
Drill, 24" Rockford, sliding head.  
Drill, 24" Fostick radial.  
Drill, Pierle high spd. ball bearing.  
Grinder, No. 1 LeBlond univ. cutter.  
Grinder, No. 6 Blount, d. e. emery.  
Lathe, 14" x 6' LeBlond engine.  
Lathe, 16" x 6' LeBlond engine.  
Lathe, 17" x 8' LeBlond rap. produc.  
Lathe, 17" x 10' LeBlond automobile.  
Lathe, 18" x 8' LeBlond engine.  
Lathe, 18" x 8' LeBlond engine, quick change gear, motor drive.  
Lathe, 20" x 10' LeBlond engine.  
Lathe, 25" x 12' LeBlond engine, h. d.  
Miller, No. 2 LeBlond universal.  
Miller, No. 3H LeBlond universal.  
Planer, 24x24"x6' Rockford, sgl. hd.  
Planer, 30"x30"x18, Rockford, 2 hds.

### FOR SALE BY

**The O'Brien Machinery Co.,** 119 N. Third St., Philadelphia, Pa.  
Boring and turning lathes, 26"x10' Walter Scott, 2-step cone, d. b. g., 5" belt; some fitted with turret on carriage, six 3" holes in turret; turning lathes swing 5' 4" between centers, 22" over carriage; price low for quick sale; photo and complete specifications on request, (12).  
Boring mill, 48" Colburn, 2 heads.  
Drill, Allen single spindle, high speed.  
Drill, Allen 5-spindle, high speed.  
Drill, Allen 6-spindle, high speed.  
Drill, 16 spindle. Baush multiple spindle, capacity 16-1" holes.  
Drills, Allen 2-spindle, high speed, (5).  
Grinder, No. 2 Norton universal.  
Hammer, 1,000 lb. Massillon st. drop.  
Hammer, 60 lb. Bradley helve.  
Jointer, 24" Oliver heavy duty.  
Lathe, 15" x 8' Davis.  
Lathes, 16" x 6' Reed, (2).  
Lathe, 16" x 8' Hendey, t. att., collets.  
Lathe, 8" x 108" Fitchburg Lo-Swing.  
Lathe, 18" x 36" x 8' Putnam extension bed, gap.  
Lathe, 18" x 8' American.  
Lathe, 22" x 8' Davis, taper att.  
Lathe, 20" x 8' Reed, taper att.  
Lathe, 36" x 20" Bridgeford  
Lathes, Seneca Falls, (4).  
Lathes, 18" x 7' Oliver, (2).  
Lathes, 21" x 8' LeBlond, (2).  
Lathe 24" x 10' National.  
Lathe, 35" x 18' Bement.  
Miller, No. 21 Garvin plain.  
Miller, No. 1 Milwaukee universal, vertical attachment.  
Miller, No. 2-B Hendey universal.  
Miller, No. 1 Garvin, universal, vertical attachment.  
Miller, No. 3 Kempsmith universal.  
Millers, No. 3 Fostick hand, (3).  
Millers, Kempsmith No. 32 Lincoln type, (3).  
Millers, No. 7-H Becker, Lincoln type, (5).  
Millers, No. 6 Whitney, hand, (6).  
Pipe machine, 2" Cox, heavy duty.  
Planer, 16" x 16" x 3' Pratt & Whitney.  
Planer, 30" x 30" x 8' New York safety.  
Planer, 36" x 36" x 14' Fitchburg, 2 hds.  
Planer, 40" x 40" x 10' Powell, 2 heads.  
Planer, 42" x 42" x 8' Sellers, 1 head.  
Planers, 30" x 30" x 10' Sellers.  
Press, Ferracute straight column trimming, side shear, wt. 7200 lbs.  
Press, No. 5 Stiles, heavy geared.  
Press, Ferracute C-4.  
Press, solid back, Henderson, wheel 30" x 44".  
Punch and shear, single end, capacity 1" in 4", new.  
Punch and shear, double end, capacity 1" in 4", new.  
Radial drill, 4' Baush.  
Radial drill, 30" Dreeses, plain.  
Radial drill, 30" Gang, plain.  
Screw mche., No. 52 National Acme, automatic, like new.  
Shaper, 16" Gould & Eberhardt.  
Shaper, 16" Hollingworth, back grd.  
Shapers, 12", 20" and 24" Juengst.  
Turret lathe, 24" Gisholt horizontal.  
Turret lathes, No. 44 B. & O., (3).

## SECOND-HAND MACHINERY

### FOR SALE BY

#### Brownell Machinery Co.,

Drills, Langelier, h. s., b. b., bench.  
Drills, 3-spindle Dwight-Slate.  
Gear cutter, No. 2 $\frac{1}{2}$  Standard.  
Grinder, No. 2 Morse plain.  
Grinder, No. 16 B. & S. plain.  
Grinder, No. 2 B. & S. universal.  
Grinder, No. 6 Diamond disc.  
Lathe, 14"x6" Worcester.  
Lathe, 15"x6" Draper.  
Lathe, 15"x10" Sebastian, gap.

#### 11-13 Eddy St., Providence, R. I.

Lathe, 16"x6" Hendey, q. c. g., taper.  
Lathe, 16"x8" Flather.  
Lathe, 15"x8" Prentice.  
Lathe, 20"x12" Perkins.  
Milling machine, No. 25 Bilton, d. g.  
Milling machine, No. 21 Garvin pln.  
Planer 48"x60"x12" N. B. P.  
Screw machines, No. 4 D. & W.,  
g. f. h. 1 $\frac{1}{2}$ ".

### FOR SALE BY

#### The Enterprise Machinery Co.,

Drill, 26" Aurora b. g.  
Drill, 3-sp. Rockford,  $\frac{1}{2}$ " s. h., p. f., k. o.  
Fox lathe, American Monitor b. g.  
Grinder, wet, heavy, dbl. or single.  
Grinder, B. & S. No. 1 cutter & reamer.  
Grinder, electric tool post, 110 v., d. c.  
Hammer, st., 800 lb. Massillon d. leg.  
Lathe, 64"x10" triple b. g., New H.  
Lathe, 32"x14" Putnam, 50" rais. blks.  
Lathe, 24"x10" Am. q. c. dbl. b. g.  
Motor,  $\frac{1}{2}$  h. p., a. c., also 220 v., d. c.

#### 30 S. Clinton St., Chicago

Pit lathe, 9 ft., 60" face pl., cheap.  
Punch press, 21 Bliss b. g. or standard.  
Punch, Rock River, L-10",  $\frac{1}{2}$ " m  $\frac{1}{2}$ ".  
Riveter, Schuster  $\frac{1}{2}$ ".  
Screw machine, auto. Acme No. 54,  
many tools.  
Screw machine, auto. Cleveland, 2 $\frac{1}{2}$ ".  
Slotter on pedestal, with vise, \$50.  
Tire bender, heavy Kane & R., for  
1", \$75.  
Tube cutter, power, Fox, \$25.

### FOR SALE BY

#### A. A. McLaughlin & Company,

#### 44 Atlas Bank Building,

#### Cincinnati, Ohio

Air compressor, steam driven duplex, cylinders 10x12x14.....	\$1200.
Air compressor, McGowan steam driven, cylinder 5x5 $\frac{1}{2}$ .....	85.
Anvils, 4 new 100 lb. Ajax, each.....	15.
Blower, Buffalo No. 8 volume B., 15" opening.....	65.
Lathe, 15"x8" Pratt & Whitney, hollow spindle.....	250.
Lathe, 17"x8" Steptoe McFarlan, solid spindle.....	250.
Lathe, 18"x8" Lathe & Morse, solid spindle.....	250.
Lathe, 16"x5" Buckeye turret lathe.....	95.
Motor, Hobart, 10 h. p., d. c.....	185.
Motor, Card, $\frac{1}{2}$ h. p., with starting box, d. c.....	185.
Planer, metal cutting, Putnam, 28"x28".....	600.

### FOR SALE BY

#### Reliance Machinery Sales Co., 114 West Park Way, Pittsburgh, Pa.

Boring mill, Betts horizontal, 3" bar.  
Drill, 26" New Haven.  
Drills, 20" Silver, new, (6).  
Drills, 16" Canedy-Otto, new, (3).  
Drills, 14" U. S. sensitive, new, (5).  
Grinder, No. 3 B. & S. univ. cutter & r.  
Grinders, Yankee drill, all sizes, new.  
Lathe, 16"x6" Blaisdell, pl. change.  
Lathe, 18"x8" Superior, d. b. g., q. c. g.  
Lathe, 20"x8" L. & S., grd. hd. (2).  
Lathe, 20"x10" Reed, pl. chg. c. r.  
Lathe, 22"x10" Davis, d. b. g., q. c. g.  
Lathe, 22"x10" Hamilton, semi q. c.  
Lathe, 21"x12" Lodge & S., q. c. g., t. a.

Lathe, 26"x10" Pittsburgh, q. c. g.  
Lathes, 18", 22" and 26" Libby.  
Miller, No. 1 $\frac{1}{2}$  American, plain, new.  
Miller, No. 1 U. S., hand, new.  
Miller, No. 4 Brown & S. univ.  
Planer, 12" Gleason, bevel gear.  
Planer, 72"x48"x16" Pond, 2 heads.  
Pipe machine, Williams,  $\frac{1}{2}$ " to 2" inc.  
Press, Loshbough-J. No. 3, new.  
Press, Loshbough-J. No. 4, new.  
Presses, Willard No. 2-A, new, (2).  
Presses, Willard No. 3-A, new, (2).  
Turrets, 24" & 28" Steinle and Gisholt.



# For Sale

## From the Equipment of The R. K. LeBlond Machine Tool Co.

No. 1	54"x54"x30" Betts Heavy Duty Planer, 2 Heads, 25 H. P. Triumph Motor, E. C. M., Reversing Controller, 220 V. D. C. Direct Connected. Thoroughly modern and in Excellent Condition.	\$7500.
No. 2	3¼" Four Spindle National Acme Auto- matic, practically new, not used 2 months	4000.
No. 3	No. 3 LeBlond Heavy Duty Plain Geared Milling Machine. Good Condition...	1450.
No. 4	2½" Landis Bolt Cutter; extra long bed equipped with lead screw. Dies and Holders .....	925.
No. 5	1—18"x8" LeBlond Semi-Quick Change Engine Lathe, Complete, Good Con- dition, Overhauled. Belt shifter....	750.
No. 6	1 Queen City Machine Tool Co. Plain Cylindrical Grinder, Capacity 16"x36", with radius grinding attachment. Used very little.....	1600.
No. 7	1 Gisholt Tool Grinder.....	250.
No. 8	1 No. 6 E. Fox Wood Trimmer.....	45.
No. 9	1 Band Saw Filing and Setting Machine	25.
No. 10	1 Hand Oil Grooving Machine.....	75.

*These tools can be inspected in our plant*

**The R. K. LeBlond Machine Tool Co.**  
**Cincinnati, Ohio**

# NEW YORK'S CR

IS THERE ANOTHER SUCH ST

**BUSY?** Yes, thank you—Both Buying and Selling. Comparison of our October and November Lists will show our activity. Over \$125,000 of Re-built Machine Tools were sold from our Jersey City Warehouse in October. There's a reason! We have attractive prices, reliable machines, and a reputation for honorable dealing. Ask our customers in all parts of the world.

## Milling Machines.

- 5736—No. 4 Cincinnati vertical.
- 5751 to 5753—Three No. 3 Cincinnati vertical high power.
- 5748 to 5750—Three No. 2 Cincinnati vertical high power.
- 5734—No. 3 combined hvy. duty Ingersoll horiz., constant spd. dr., motor dr.
- 5728—No. 3S Cincinnati universal, dividing head, vertical attachment.
- 5623 to 5627—Five No. 2 LeBlond plain.
- 5724 to 5727—Four No. 2 Cincinnati high pwr. univ., dividing hds., vert. att.
- 5100—No. 1 Bickford plain, longitudinal travel 12", cross 6", vertical 8".
- 5528—Brainard No. 7 Lincoln type.
- 2603 & Two Brainard Plain Milling Machines, table 6"x24".
- 5615—45"x25"x9" Newton slab, horizontal and vertical spindles.
- 5060—36"x36"x12" Ingersoll heavy duty horiz. slab, adjustable rail, takes 36" under rail, weight 42,000 lbs.
- 5647—No. 12 Cincinnati manufacturing.
- 5645-5646—Two No. 6 Whitney hand.
- 5649—No. 2 Pratt & Whitney.

## Boring Mills.

- 5618—10' Pond-Plainfield vert., 2 swl. hds.
- 5674—80" Niles-B.-P. vert., 2 swl. hds.
- 5733 & Two 80" Pond-Plainfield vertical, 5675 & two swivel heads.
- 5548—5' Poole vert., 2 swl. hds., actual sw. 64", sgl. pulley thread cutting att.
- 5719—51" Niles vertical, 2 swivel heads.
- 5634—42" Bullard vertical, two hds.—one turret, one swivel, for motor drive.
- 5595—38" McCabe vertical, 2 heads,—one swivel, one plain.
- 5563—No. 3 Betts horizontal, 5½" spindle, with motor,—latest type.

- 5390—37" Niles vertical, 2 swivel head.
- 5718—No. 2 Barrett horiz. cyl. 5" bar
- 5551—No. 2 Betts horizontal, 4½" spindle with motor,—latest type.
- 5680—No. 2 Betts horizontal.
- 5435—No. 36 Rochester horiz. floor type boring, milling, drilling, and tapping mch., 3½" spdl., dir. connected to mo.
- 5679—Binsse horizontal, 3½" spindle.
- 5622—Beaman & Smith floor type, 3" spdl.
- 4249—Niles car wheel boring mill, table 48" diameter, takes 36" wheel; swinging derrick attached to machine.

## Slotters.

- 5425—68" N.-B.-P. geared slotter, max working str. 64", distance front of tool apron to frame 44½", max. distance guides above tbl. 55", working surface of sq. tbl. 54", cross trav. tbl. 60", long. trav. 60"; also rotary fd.
- 5754-5755—Two 18" Bement Miles.
- 5738-5739—Two 18" Betts slotters, mo. dr.
- 5740—18" Dill slotter, motor driven.
- 5737—16" Betts slotter, motor driven.
- 5568—16" Bement Miles.
- 5603—16" Niles.
- 5555—14" Niles.
- 5597—12" Betts.

## Gear Cutters.

- 5779-5780—Two 72" Gould & E. spur.
- 5751-5782—Two 60" Gould & E. spur.
- 5644—36" Fellows gear shaper.
- 5630—36"x10" Brown & Sharpe spur gear
- 5361—No. 3 Brown & Sharpe auto. sp.
- 5640—24"x9" Gould & Eberhardt spur
- 4376—19"x5" Lees Grant automatic gear hobber, spur and spiral.

## Presses.

- 5732—No. 87 Bliss.

# New York Machine

Offices: 50 Church St

Telephone—CORTLANDT 6661-6662

# CREATEST STOCK

## CH STOCK UNDER ONE ROOF?

5588—No. 857 Toledo rack & pinion reducing, adjustable stroke 5" to 40", weight about 22,000 lbs.

5589 { Two No. 856 Toledo rack & pinion  
5590 { reducing, adjustable stroke from 5" to 36", weight each about 15,000 lbs.

5591 { Two No. 666 Toledo knuckle joint,  
5592 { 24" stroke; 1000 tons pressure, wt. about 80,000 lbs.

5729-5731—Three No. 77 Bliss, dbl. grd.

5770—Two No. 5A Bliss, geared,

5770—No. 4A Bliss, geared.

5393 { Three No. 60 Bliss reducing, with  
5394 { rack and pinion movement adj. str.  
5395 { from 4" to 42" wt. each 12,500 lbs.  
especially adapted for drawing shells and up tubes to 21" long.

5190—SG-53 Ferracute double crank grd. 2" stroke, complete with bolster; weight about 14,900 lbs.

5150—No. 4 Bliss straight sided double crank, 24" stroke; weight 12,000 lbs.

4748—No. 3 Farrell power, 14" stroke.

5245—NEW 50" 200-ton Tomlin-Harris hydraulic wheel press.

5410—40" 100-ton hydraulic wheel press.

### Turret Lathes.

5768—Four 3"x36" Jones & Lamson.

5773—Two 2A Warner & Swasey.

5773—Seven 3A Warner & Swasey.

5470—24"x24" Jones & Lamson, sliding hd, flat turret, bar equipment.

0305—48"x8" Bridgeport, back geared, 13" turret with six 2" holes.

0307—30"x10" Morse friction hd., hollow spindle, face plate drive 15" hexagon turret with six 3" holes.

5713 to 5714—Two 21" Gisholt.

3490—16"x5' Monitor, 10", turret with eight 1" holes.

0312—10"x4' Garvin, bk. grd., fric., hd. 14" hole in sp., 7" tur. with 14" holes.

3542—9"x38" Windsor, 1 5/16" hollow spindle, double cut-off rest, round turret 7" diameter, with six 3/8" holes.

### Crane.

5484—25-ton Northern Engineering Wks. elec. trav. crane, 53' 8" span; three motors 220 volts, direct current.

### Cutting-Off Machines.

3447—Bement-Miles double end, 9" cap.

—Two 4 1/2" Davis.

### Planers.

5469—No. 1 Hilles & Jones 14" plate.

5409—62"x62"x17" Betts, two heads.

5643—56"x48"x12' Whitcomb, 3 heads.

3235—55"x48"x15' Lincoln 4 hd. stone.

5616—48"x48"x12' Pond-Plainfield, 3 hds.

5759 to 5764—Two 36"x36"x12' Pond, 1 hd.

5168—36"x36"x10' Niles, hvy. duty, 2 hds.

5662—33"x33"x8' New Haven, one head.

5427—32"x30"x10' Woodward-P., 2 heads.

5558—30"x30"x12' Harrington, 2 heads.

5720—30"x30"x8' Woodward-Powell, one rail head, two side heads.

5379—30"x30"x8' Niles, two heads.

5639—28"x26"x6' American, one head.

4741—16"x16"x42" Walter Bros., 1 head.

5681—16"x16"x36" Pratt & W., one head.

### Saws.

5297—Two No. 3 Ryerson friction saws, capacity 24" beams or equivalent; blade 52" diameter, str. 38", motor driven; weight 12,000 lbs. each.

5636—No. 12 Atkins Kwik-Kut hack saw.

5601—Marvel High Speed hack saw, capacity 6"x6".

### Engine Lathes.

5526—60"x18" Fifield, tr. grd., face plate drive, compound rest, 9' 10" centers, four independent chuck jaws.

5682—36"x22' Pond-Plainfield, triple grd. face plate drive.

5534—36"x18' 6" Niles, 12' 6" centers, 30" four jaw independent chuck.

5554—32"x22' Fitchburg, dbl. bk. grd., 15' 10" centers, 24" 4 jaw ind. chuck.

5188—30"x16" Niles, c. r. 9' 11" centers.

5774—Three 30"x12' Pond, q. ch. grd. hd.

5758—26"x14' Putnam.

5539—26"x12' Putnam, semi-quick change, dbl. bk. grd., 23" hollow spindle, 5' 2" centers, taper attachment.

5741 to 5745—Five 24"x14' Reed Prentice engine lathes, geared head, taper attachment, motor driven.

(See next pages for the rest of the list)

# ctinery Exchange

rd Street, New York

Warehouse—JERSEY CITY, 222-238 Culver Av.

# NEW YORK'S G

## IS THERE ANOTHER SUCH

**BUSY?** Yes, thank you—Both Buying and Selling. Comparison of our October and November Lists will show our activity. Over \$125,000 of Re-built Machine Tools were sold from our Jersey City Warehouse in October. There's a reason! We have attractive prices, reliable machines, and a reputation for honorable dealing. Ask our customers in all parts of the world.

### Engine Lathes—Cont'd.

- 5756-5757—Two 24"x10' American.
- 4889—22"x8' American, 1 1/16" hol. sp., c. r., 43" centers, taper attachment.
- 4882—21"x9' American, 1 1/8" hollow spdl., compound rest, 4'9" centers.
- 5139—20"x14' Powell, c. r., 10'1" centers.
- 5746—20"x12' Prentice, 1" hollow spdl., compound rest, power cross feed.
- 5771—20"x8' I. H. Johnson.
- 5367—20"x8' Whitcomb-Blaisdell geared head, q. c. g., single pulley dr., 1 1/4" hollow spindle, compound rest.
- 5421—18"x12' Lodge-Shipley grd. hd., q. c. g., dbl. bk. grd., sgl. pulley dr., 1 9/16" hol. sp., c. r., 7'11" centers.
- 5432—18"x10' Draper, 1 1/8" hollow spdl., compound rest, 70" centers.
- 5401—18"x8' Lodge-Shipley, quick c. gr., 1 1/8" hollow spindle, compound r.
- 5450—18"x8' Baker, 1 1/4" hol. spbl., c. r., steady rest, follow rest, 50" centers, automatic knock-off.
- 4316—18"x6' Lodge-Shipley, qk. chg., 1 1/8" hol. spdl., comp. rest, steady rest.
- 4880—18"x6' American, h. s., comp. rest.
- 5710—16"x12' 6" Hendey, qk. chg., h. s.
- 5706—16"x12' Lodge-S., h. s., q. c., t. a.
- 5712—16"x8' Pratt & Whitney, semi-qk. plain change, pan bed, taper att.
- 5708—Two 16"x8' Lodge-Shipley, quick
- 5709—change, pan bed, taper attachment.
- 5772—16"x8' Cisco, quick change.
- 5707—16"x8' Hendey, q. c., taper attach.
- 5689—16"x8' Reed, taper attachment.
- 5711—16"x6' Hendey, q. c., pan bed, t. a.
- 5709—Nine 16"x6' Lodge-Shipley.
- 5568—14"x7' Bullard, hollow spdl. comp. rest, power cross feed, steady rest.
- 5699 to 5705—Seven 14"x6' Lodge-Shipley, quick change, pan bed, taper attach.

### Hammers.

- 4939—1500-lb. Williams & W. board drop.
- 5286—900-lb. Merrill board drop.
- 4551—750-lb. Toledo rope drop.
- 5580—600-lb. McDougall & Potter single frame steam.
- 5386—75-lb. Style E Fairbanks power.
- 2013—Three 40 lb. Gould & Eberhardt
- 2014—hand rope drop.
- 2015—

### Screw Machines.

- 5264—Two 2 1/2" Gridley single spindle
- 5286—automatic.
- 5767—Nine 2 1/2" Gridley, 4 spindle auto.
- 6302-6303—Two 2" Cleveland full auto.
- 5671—No. 24 Garvin, hand, back geared, friction head, capacity 1 7/16".
- 3354—4" Pratt & Whitney, hand.

### Shapers.

- 4723—26" Lodge-Davis geared.
- 5652—24" Gould & E., bk. grd. crank.
- 3978—24" Hendey friction.
- 4328—21" Juengst crank.
- 5612-5613—Two 16" G. & E. high duty cr.
- 5722—Gould & Eberhardt crank.
- 5723—16" Hendey friction.
- 5054—12" Hendey friction.
- 4823—10"x42" Perkins traverse.

### Pipe Mchs.—Bolt Cutters.

- 5578—10" Cox.
- 5715—8" Eaton, Cole & Burnham.
- 5560—6" Eaton, Cole & Burnham.
- 5721—2 1/2" Acme bolt cutter.
- 5717—1 1/2" Acme dbl. hd. bolt cutter.
- 5765—No. 3 Putnam bolt cutter, cap. 1 1/2".

### Punches and Shears.

- 5454—No. 15 Standard direct acting pch. & sh., 40" throat, capacity 1" in 1".

# New York Machine

Offices: 50 Church

Telephone—CORTLANDT 6661-6662

# REAL TEST STOCK

## STOCK UNDER ONE ROOF?

5694 Two No. 3 Hilles & J. single end punches & sh., 30" th., punch 1 1/2" in 1" shear 1 1/2" plate, 2 1/2" round, 7" x 1 1/2" flat, 5" x 5" x 7/16" angles.  
 5784 No. 2 Bethlehem rotary shear, 31" throat, cut 3/16" plate.  
 5661 Sellers single end punch, 24" th., punch 1" in 1/2".  
 5533 Cleveland horiz. punch. 18" tht. arch. jaw, arr. for mot. dr.; cap. 1 1/2" in 1"  
 5208 No. 1 Long & A. plate punch, 13" tht., punch 1 1/2" in 1", spacing table 27" long, having automatic feed with quick return.  
 5042 Farrel sgl. end punch & sh., 12" tht., punch 1" in 1/2", sh. 8" x 1 1/2" flat, 1 1/2" rd.  
 3897 Pels beam shear, "T-40," 15" cap.  
 5692 No. 3 Hilles & Jones slitting shear, splits plate 1/2" diam., trims 1" plate, cuts 6 x 1/2" flats, 2" rds., 4 x 4 x 1/2" angles.  
 2716 Alligator sh., 5" jaw, 1 1/2" bar stock.  
 4344 NEW Oeking solid steel frame hand-pwr. bar cutter, cut rd. bars up to 2"; sq. bars up to 1 1/2"; wt. 750 lbs.  
 5237 Hand scr. punch 6 1/2" tht. cap. 1/2" in 1/2"  
 5238 Mackinnon hand lever punch, 18" throat, capacity 1/2" through 1/2".  
 5941 S Robinson hand brake, No. 18 ga.

### Grinders.

5194 16" x 66" Landis universal, full equipment; weight 10,000 lbs.  
 5653 to 5656 Four No. 11 B. & S. plain.  
 5657 No. 10 Brown & Sharpe plain.  
 4372 5" x 24" Bath universal.  
 3934 Whitney surface, table 6" x 12".  
 5659 No. 2 1/2 Bath universal.  
 3726 No. 1 1/2 Landis internal.  
 3730 No. 2 Garvin cutter and reamer.  
 4749 F. E. Wells cutter, 18" bet. centers.  
 5076 Two No. 5 Diamond wet tool  
 5077 grinders.

### Drilling Machines.

5476 6 1/2" Baush plain radial.  
 5614 5" Fosdick plain radial, sgl. pulley, gear box, tapping attachment.  
 5637 42" Gang plain radial, tapping att.

5761 30" Dreses & Mueller pl. radial.  
 5762 48" Fitchburg, bk. grd., sliding hd.  
 4569 32" Pratt & W., bk. grd., slid. hd.  
 5541  
 5542 Three 28" Sibley slid. hd., grd. fd.  
 5544  
 5688 26" Barnes, bk. grd., sliding head.  
 5605 to 5608 Four 24" Prentice, bk. grd., sliding head.  
 4228 to 4230 Three No. 25-24" Foote-B. high duty, cap. 2 1/2" in solid steel.  
 5645 22" Barnes, back geared.  
 5430 22" Rockford, bk. grd., sliding hd.  
 5429 22" Rockford, back geared.  
 5677 Barnes horizontal drill press.  
 3867 Foote-Burt 7-spdl. sensitive.  
 5650 Allen 6-spindle sensitive.  
 5651 Allen 4-spindle sensitive.  
 4449 12" Barnes sensitive.  
 4405 Baush horiz. 16-spindle multiple, spindles take No. 4 Morse taper.  
 5667 Baush vert., 14-spindle multiple.  
 5509 Baush vertical 8-spindle multiple, spindles take No. 4 Morse taper.  
 5531 Baush vertical 8-spindle multiple, spindles take No. 3 Morse taper.  
 4627 20" Barnes 4-spindle.  
 5507 17" Barnes 3-spindle.

### Miscellaneous.

—18 Closed Storage Tanks, 1/2" steel plate, capacity 2300 to 6000 gallons.  
 5368 No. 4 W. & W. bulldozer, 18" str.  
 5345 Hammered steel bending rolls, 62" between housings, 5/16" capacity.  
 2589 24" Baker keyseater and slotter.  
 5586 4" Baker tapping machine.  
 4575 40 k. w. Fisher d. c. generator, 125 volts, 675 r. p. m.  
 4760 120 h. p. G. E. motor, d. c. 240 volts.  
 4786 9" x 6" Lidgerwood rotary hoisting engine.  
 5450 10-ton Speidel chain block.  
 0309 2 No. 58 Springfield oil separators.  
 0310  
 5154 Double plunger hydraulic belt driven pump.  
 0311 Rockwell oil furnace.  
 0301 7 H. P. Backus gas engine.

# inery Exchange

Street, New York

Warehouse—JERSEY CITY, 222-238 Culver Av.

We Have For Sale in Our Warehouse  
**40 Briggs High Duty Milling Machines**

Type "A", Made by Gooley & Edlund

Used three to six months in the manufacture  
of light gun parts

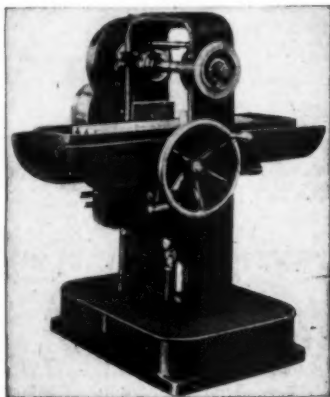


Table traverse.....	16".
Size of table.....	24x8.
Between housings.....	12 $\frac{1}{4}$ ".
Taper of arbor No. 11 Brown & Sharpe.	
Maximum distance, table to arbor.....	12".
Feed changes .....	eight.
Floor space .....	42x52.
Weight.....	2300 lbs.

PRICE, each.....\$400.

less 10% in lots of six.

**J. L. LUCAS & SON, Inc.**

No. 3 Fox Street,

BRIDGEPORT, CONN.

# Heavy Lathes For Sale

We have just bought 20 Heavy Lathes which we are now overhauling and will sell them at fair prices

36"x10'	Putnam Geared Face Plate Lathe, compound rest, screw cutting, no tailstock, fine condition, at .....	\$ 1000.
42"x16'	Lathe & Morse S. C. Lathe, compound rest, solid spindle, 4" belt, b. g., complete and well worth.....	1250.
28"x13'	Niles-Bement-Pond heavy duty, compound, taper, p.c.f., very modern and fine condition	1750.
26"x12'	Putnam h. s., compound, overhauled and complete, at .....	800.
24"x10'	Reed & Putnam and	
20"x10'	and 12' Putnam. We have several, let us know what size and we will pick one out and send you the particulars, also photo.	
24"x20'	Niles, compound, taper, h. s., and complete, 15'6" between centers, fine order, at .....	1250.
20"x8½'	Roulsted, double b. g., compound, 2" h. s., excellent condition and as good as new, at...	700.
20"x12'	Schumacher & Boye, b. g., oil pan bed but not screw cutting, a big bargain at.....	375.
10-14"	and 16"x8' and 6' beds, from \$300 to \$450 each.	

## Hendey Lathes

1-20"x10'	Hendey, tie bar, oil pan, compound and taper attachment.....	\$ 1800.
1-16"x 7'	Hendey, tie bar, taper and compound.....	900.
3-16"x 6'	Hendey, compound, taper, oil pan bed.....	800.
1-16"x 6'	Hendey, compound, oil pan.....	750.

We guarantee the condition of these lathes and can send you photos of most of them

**J. L. LUCAS & SON, INC.**

3 Fox St.,

BRIDGEPORT, CONN.

## Big Presses For Sale

- 1—No. 12 Perkins Straight Side Press, geared,  
30"x30" bolster, 42x7 flywheel, one 3" and  
one 8" crank shaft. Fine Condition..... \$1600.
- 1—No. 3½ Bliss Cam Drawing Double Action  
Press, good order..... 2000.
- 1—300 ton & 800 ton Toggle Embossing Presses.
- 1—5" Stroke Farrel Foundry Redrawing  
Press, O. B. .... 275.
- 1—200 ton Ferracute E. G. No. 52 Embossing  
Press ..... 800.

*Send for complete list No. 52 with prices  
and tell us your wants.*

**J. L. LUCAS & SON, INC.**  
3 FOX STREET, BRIDGEPORT, CONN.

## Machine Tool Bargains

- 9—No. 4 Warner & Swasey Type Geared Friction Head  
Screw Machines, automatic chuck, wire feed, power  
feed to turret, 95% new.
- 2—16" Acme Geared Friction Head Universal Turret  
Lathes.
- 4—No. 24 New Britain Automatic Screw Machines.
- 1—16x52 Landis Plain Grinder.
- 1—3' Plain Radial Drill.
- 9—Whitney Hand Millers.
- 3—No. 6 Diamond Disc Grinders, equipped with two  
universal lever feed tables and 2 14" ring wheel  
chucks.
- 1—No. 6 Ditto Single End Machine.
- 1—Lo-Swing Lathe, 3½x60.

**The H. A. Smith Machinery Co., Inc.**  
501-505 East Water St., Syracuse, N. Y.



# **FOR SALE**

**completely equipped**

## **Foundry and Machine Shop**

**Now in operation in the Southern part of Illinois in the heart of the Coal Mining District**

**Excellent opportunity to continue business, which will bear investigation**

*Full details on request*

**Vonnegut Machinery Co.**  
**Indianapolis, Ind.**

# Reliabuilt Machine Tools

## SPECIALS—

- 8—No. 2-G BROWN & SHARPE Automatic Screw Machines.
- 3—No. 2 BROWN & SHARPE Automatic Screw Machines.
- 3—No. 0-G BROWN & SHARPE Automatic Screw Machines, with slotting attachment.
- 4—No. 0-G BROWN & SHARPE Automatic Screw Machines.

- 5—2¼" GRIDLEY Four Spindle Automatics, complete.
- 3—1¼" GRIDLEY Four Spindle Automatics, complete.
- 1—No. 59¼ TOLEDO Straight Sided Press, tie rod frame, 12" str.
- 1—NEW No. 56 TOLEDO single crank double geared, 8" stroke.
- 1—DGG-55 FERRACUTE Press, 20" stroke.
- 1—D-201 FERRACUTE, 16", 25", 30" and 42" stroke.
- 1—D-301 FERRACUTE, 10" stroke, and EG-6 with 2" stroke.
- 1—EG-56 FERRACUTE, ¾" stroke, and E-57 with 2½" stroke.
- 1—No. 29 TOLEDO Cam Drawing Press.
- 1—No. 59 TOLEDO Straight Column Press, double geared.
- 1—42" BULLARD Vertical Boring Mill, two swivel heads.
- 1—37" BULLARD Vertical Boring Mill, two swivel heads.
- 1—12" NILES Boring and Turning Mill, two swivel heads.
- 1—15" HORIZONTAL Boring Mill, floor type with 10" bar.
- 1—No. 3 CINCINNATI High Power Vertical Miller, arranged for motor.
- 1—No. 3-B OWEN Plain Miller, vertical attachments.
- 4—No. 4 CINCINNATI Universal Millers, with vertical head.
- 2—No. 4 BECKER Vertical Millers, complete.
- 2—No. 2 CINCINNATI Vertical Millers, with sliding head.
- 1—7¾" WARREN Radial drill, semi-universal.
- 1—6" PRENTICE Radial Drill, single pulley drive.
- 1—5" PRENTICE Radial, complete with tapping attachment.
- 1—4'6" BICKFORD Radial, complete with tapping attachment.
- 3—NEW 42"x42"x12' OPENSIDE Planers, two heads, complete.
- 1—36"x36"x12' BICKETT Planer, two heads on cross rail.
- 3—44"x16" NILES Lathes, all geared heads, 8'6" centers.
- 1—36"x16" NILES Geared Head, q. c. g., motor drive lathe.
- 1—36"x12'6" Bement Lathe, triple geared, double friction, c. s.
- 1—26"x10' LODGE & SHIPLEY Lathe, late type.
- 4—20"x 8' AMERICAN High Duty Quick Gear Lathes.
- 1—40"x24' and 18' FIFIELD Lathe, triple geared.
- 3—18"x10' HENDEY Lathes, taper, pan, geared head, relieving attachment.
- 3—27"x10' AMERICAN Geared Head Lathes, single pulley.
- 4—24" BEMENT Crank Slotters, complete.
- 3—18" and 12" DILL Slotters, complete with motor.
- 1—No. 30-12 Spindle BAUSH Drill, complete.
- 1—24" AURORA, 26" BARNES, 36" CINCINNATI Drills, complete.
- 1—30"x10' and 12' POND Lathe, complete.

**Simmons Machine Co., Inc.**

**Albany, New York**

**1001 Singer Bldg., N. Y.,**

**358 Ellicott Square, Buffalo**

# ReMANUFACTURED

-(ORIGINATED BY US)-

# MACHINE TOOLS

**REAL BARGAINS**—Every Re-Manufactured machine is being offered at real bargain prices. In fact, we can sell our ReManufactured tools, which compare favorably with new, at prices lower than those of the ordinary used tools.

## LATHES.

- 1—14"x 6' Reed-Prentice.
- 42—14"x 6' Reed, ex. hvy., pl. eng.
- 7—16"x 6' Reed engine, c. r.
- 12—17"x 6' LeBlond Rapid Prod.
- 6—17"x 8' LeBlond, c. r., q. c. g.
- 21—18"x 8' Boye & E., d. b. g., c. r.
- 8—18"x 8' Boye & Emmes, dbl. bk. grd., comp. rest qk. ch. grd.
- 18—18"x 8' LeBlond, dbl. bk. grd., comp. rest, qk. ch. grd.
- 65—19"x 8' LeBlond, dbl. bk. grd., comp. rest, qk. ch. grd.
- 35—19"x 8' LeBlond, dbl. bk. grd., comp. rest, qk. ch. grd.
- 14—20"x 8' LeBlond Engine, dbl. bk. grd., comp. rest, q. c. g.
- 16—20"x 8' American, dbl. bk. grd., comp. rest, qk. ch. grd.
- 113—20"x 8' American, dbl. bk. grd., comp. rest, qk. ch. grd.
- 58—21"x10' LeBlond, dbl. bk. grd., comp. rest, qk. ch. grd.
- 10—25"x10' LeBlond, dbl. bk. grd., 33—26"x10' Niles, d. b. g., c. r., q. c. g.
- 3—26"x12' Putnam, motor driven, comp. rest, qk. ch. grd.
- 75—26"x10' Bridgeford double back grd. comp. rest, qk. ch. grd.
- 30—26"x12' Bridgeford double back grd. comp. rest, qk. ch. grd.
- 16—26"x14' Bridgeford double back grd. comp. rest, q. ch. grd.
- 7—26"x16' Bridgeford double back grd., comp. rest, qk. ch. grd.
- 10—26"x18' Bridgeford double back grd. comp. rest, qk. ch. grd.
- 5—26"x20' Bridgeford double back grd., comp. rest, qk. ch. grd.
- 9—30"x11' American geared head, comp. rest, qk. ch. grd.
- 3—30"x15' American geared head comp. rest, qk. ch. grd.
- 3—30"x20' American geared head comp. rest, qk. ch. grd.

- 23—32"x12' Pittsburgh double back grd. comp. rest, qk. ch. grd.
- 4—40"x12' Fifeild trip. gd., c. r.
- 4—40"x18' Fifeild trip. gd., c. r.

## MILLING MACHINES.

- 1—No. 1-B Milwaukee plain.
- 1—No. 20 Ohio universal.
- 1—No. 1 Dow plain.
- 1—No. 1A Brown & Sharpe Univ.
- 1—No. 2-G Hendey Universal.
- 6—No. 2 Kempson plain.
- 1—No. 2-A Garvin plain.
- 2—No. 3 Cincinnati plain.
- 1—No. 3 Cincinnati universal.
- 1—No. 3 LeBlond universal.
- 1—No. 4 Becker-Brainard univ.
- 1—Type B Briggs miller.

## BORING MACHINES.

- 2—30" Bullard vertical.
- 1—51" Bullard vertical.
- 1—24" bar Cleveland horizontal.
- 1—31" bar Binsse horizontal.
- 1—31" bar Barrett horizontal.
- 1—4" bar Niles horizontal.
- 1—2 spdl. Beaman & Smith cylinder

## TURRET LATHES.

- 5—19" LeBlond universal.
- 34—19" LeBlond combination.
- 15—20" American combination.
- 12—21" LeBlond universal.
- 6—21" Gisholts.
- 32—24" Steidle.
- 14—2-A Warner & Swasey.
- 8—3-A Warner & Swasey.

## GRINDERS.

- 1—6"x32" Norton Plain.
- 4—10"x36" Norton Plain.
- 2—10"x50" Norton Plain.
- 1—No. 2 Bath surface.
- 1—No. 22 Brown & Sharpe Internal.
- 1—Pratt & Whitney surface.

## DRILLS & RADIAL.

- 4—2-K Henry & Wright.
- 3—3-K Henry & Wright.

*Write for our Green List describing these and many others*

## HILL, CLARKE & CO. OF CHICAGO

649 W. WASHINGTON BLVD., CHICAGO, ILL.



Phone Franklin 5899

568 Washington Blvd.

## New and Used Machinery for Immediate Delivery

### AIR COMPRESSORS AND TANKS

All Sizes—Steam and Belt Driven.

#### DRILLING MACHINES

No. 32 DeMooy 2-sp., new.....	\$ 400.	2" Avey No. 1 single spindle, 95% condition .....	\$ 125.
20" Champion, bk. grd., p. f. new, (5).....	165.	4" Radial, drills, new, (7).....	2200.
30" Silver, b. g., p. f., new, (2)	155.	22-spindle National Automatic, 1½-spindle, new.....	4500.
14" U. S. drills, new, (4).....	55.		

#### ENGINES

Steam and Gasoline, all sizes.

#### HAMMER

No. 201 David Bell steam hammer, condition 95% .....	\$ 450.
--	---------

#### LATHES

Fifield—We are manufacturers of the Fifield Lathes, for immediate delivery, as follows:

50x20 and 50x32 cone type; 50 by any length bed; 60x24, 60x25 and 60x30 either motor or cone drive; 96x24 and 96x30 cone drive.

18"x8" South Bend, 95%, (7).....	\$ 575.	20x8 Monarch, 95%.....	\$ 750.
15"x8" Sebastian gap, new.....	525.	No. 2 Niles double axle lathe, 95%.....	1200.
52" Niles tire lathe, 95%.....	3500.		

All sizes new Oliver, Filsmith, South Bend and Mulliner in stock.

#### PUNCH PRESSES—NEW

No. 56 Toledo straight column, geared, approximate weight 11000 lbs., (36), each.....	\$2300.
No. 57 Ditto, weight 18000 lbs., (2), each.....	3500.
No. 57½ Ditto, weight 25000 lbs., .....	5500.
No. 58 Ditto, weight 33000 lbs., .....	6500.
No. 59 Ditto, weight 50000 lbs., .....	9000.
No. 59½ Toledo, dbl. grd., motor dr., with Western Elec. 4 h. p. motor, speed 1200 r. p. m., for 3-phase, 60 cycle, 440 volts, complete with standard equipment, 110000 lbs., .....	17500.

#### MILLING MACHINES

No. 3 Kempsmith univ., 95%.....	\$1900.	No. 1 Bilton, new .....	\$ 725.
No. 3 Kempsmith plain, 95%.....	1300.		

#### PLANERS

24" Lane endless bed, with chip breaker, 98%.....	\$ 400.	42"x48"x11' Gray, cond. 90%.....	\$ 4000.
24"x24"x 4' Gray No. 3, 95%.....	775.	48"x48"x30' Putnam, cond. 95%.....	10000.

#### SCREW MACHINES

Nos. 4 and 5 Foster, 95%, (7).....	\$ 650.	1" Chicago automatic, 90% (7).....	\$ 400.
No. 10 Foster, 95%, (3).....	900.		

#### SHAPERS

12" Hendey, geared, 90%.....	\$ 200.	24" Queen City, new.....	\$1515.
20" Queen City, new.....	1215.		

Write for complete stock list.

# Rebuilt Modern Machine Tools

## LATHES

- 21" x 10' LeBlond Heavy Duty, quick change, (10).
- 26" x 9' Bridgeford Heavy Duty, quick change.
- 26" x 10' Prentiss, 3-step, double back geared.
- 28" x 14' Fifield, 4-step, loose change.
- 24" x 8' Lodge & Shipley, quick change.
- 24" x 12' Sebastian, loose change.
- 16" x 6' Lodge & Shipley, quick change.
- 20" x 10' Lodge & Davis, loose change.
- 25—Lathea, 12 to 18" swing, 5' to 8' beds.

## UPRIGHT DRILLS AND RADIALS

- 3' Bickford, cone drive.
- 5' Niles Radial, cone drive.
- 6' Pond Plain Radial, cone drive.
- 8-Spindle Western Multiple.
- No. 4 Quint 32" Turret Drills, (3).
- 38" New Haven Upright, back geared, power feed.
- 32" Aurora, tapping attachment.
- Style 2-M Baker, heavy duty.

## GEAR CUTTERS

- 26" No. 3 Brown & Sharpe, Spur.
- 36" Gould & Eberhardt, Spur.
- 36" Flather, Spur.
- No. 13 Brown & Sharpe, Spur and Bevel.
- 14" Eberhardt Bros., Spur and Bevel.

## VERTICAL & HORIZONTAL BORING MILLS

- 30" Bullard Vertical, turret head.
- 38" American Vertical, two heads.
- 42" Bullard Vertical, two heads.
- No. 1 Cleveland Horizontal, 2½" bar.
- Warner & Swasey Horizontal, 2½" bar.

## PLANERS, SHAPERS AND MILLERS

- 16" Smith & Mills Crank Shaper.
- 24" Smith & Mills Geared Shaper.
- 24" x 24" x 6' Harris Planer, one head.
- 36" x 36" x 12' Niles Planer, two heads.
- 60" x 60" x 16' Niles Planer, two heads.
- No. 20 Oesterlein Plain Miller.
- No. 2 Brown & Sharpe Plain Miller.
- No. 34 Ohio Plain Miller, heavy.
- No. 35 Ohio Universal Miller.
- No. 1½ Valley City Universal Miller.
- No. 3 Kempsmith Plain Miller.

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**Broadway Machinery Company**  
Cincinnati, Ohio

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66 EXCHANGE STREET,  
BUFFALO, N. Y.

*Supplies The  
"Hard To Get"  
Machine Tools*

### **Betts Boring Mills and Other Machine Tools For Sale**

Write for prices on the following machine tools that are to be released in January, 1920, or see them in operation at our shops.

- 72" Betts Vertical Boring Mill, 2 Head.
- 8' Betts Vertical Boring Mill, 3 Head, Fixed Rail.
- 64" Swing, New Haven Lathe, 12 ft. Bed.
- No. 23 Brown & Sharpe Cylinder Grinder (Will grind cylinders up to 7" diameter and 18" long).
- 30" Colburn Vertical Boring Mill.
- 34" Colburn Vertical Boring Mill.
- 36" Gang Radial Drill Press.
- 48" Gang Radial Drill Press.
- 48" Colburn 2 Head Boring Mill.

**The Bessemer Gas Engine Company**  
Grove City, Pennsylvania

# Machine Tool Bargains

24" Steinle Turret Lathes, excellent condition, less than half price.

Number is limited and they are going fast.

## LO-SWING LATHES

8"x60" Lo-Swing Lathes, equal to new, at a great saving.

## ENGINE LATHES

36"x28" Putnam Heavy Duty Lathe, late style, triple geared, 6" belt, 3 step cone, hollow spindle, quick change gear, compound rest, 19" between centers. Actual weight 28000 lbs.

26"x12" Bridgeford Heavy Duty Lathe, quick change gear, used less than thirty days.

25"x10" Crawford Lathe, quick change gear, taper attachment, raising blocks to 42", used four months.

24"x10" Crawford, loose change gears, heavy duty, splendid condition.

24"x31" 7" Sellers Shafting Lathe.

## DRILLS

5½" Niles-Bement-Pond, Radial, cone drive, fine tool.

42" Barnes, sliding head, power feed, back gear. A bargain.

24" Foot-Burt No. 25, heavy duty.

3-Ingersoll-Rand Little David Pneumatic Portable Drills, brand new.

## SLAB MILLER

28"x6½" Newton Slab Miller, used six months.

## GRINDER

21"x96" Landis Universal Cylindrical, with crank shaft grinding attachment.

## ELECTRICAL

200 K. W. 250 V., D. C. Generator with Engine.

50 K. W. 250 V., D. C. Motor.

100 H. P. General Electric Motor, 220 V., 60 Cycle, 3 phase.

*Large stock other Motors, Boilers, Engines, Pumps, Generators and miscellaneous machinery*

**Wickes Machinery Company**  
Jersey City, N. J.

## Second-Hand Machinery

### CUTTING-OFF MACHINES.

2-4' bed Hurlbut-Kogers.

### DRILLS.

- 4-Demco bench drills, new.
- 18" Baker, stationary head, hand lever and power feed.
- 40" New Haven upright.
- 16" Hoefler, actual swing 44", single spindle, assembling.

### GEAR CUTTERS.

48"x10" Gould & Eberhardt new type, for spur gears only.

### HAMMERS.

2-250 lb. Beaudry upright power hammers.

### ENGINE LATHES.

- 16"x16' cone driven, Bridgeport automatic threading.
- 17" x 8' Greaves-Klusman, five step cone, single back gears, plain change gears and countershaft.
- 18" x 6' Imperial chucking lathe, with turret.
- 28"x14' Ames.
- 30"x10' Fifield.
- 32"x16' Fay & Scott, compound rest, tur. on shears, turret tool post.
- 50"x14' New Haven.

### MILLING MACHINES.

No. 32 Kempsmith Plain, one arbor and countershaft.

### SCREW MACHINES.

3-1" Truman & Smith, with countershafts.

**Marshall & Huschart Machinery Co.**

17 S. Jefferson St., Chicago, Ill.

## Very Latest Type

High Grade Machine Tools 90% New

- 1-Niles 42"x42"x12' Planer, 2 heads on rail.
- 1-Niles 44" Vertical Boring Mill, 2 heads, all gear feeds, single pulley drive.
- 1-Niles 5' Full Universal Radial Drill, gear box.
- 1-Niles 36"x16' Double Back Gear and Quick Change Lathe.
- 1-Niles 36"x14' Double Back Gear and Quick Change Lathe.
- 1-Stockbridge 20" Back Geared Shaper.
- 1-Brown & Sharpe No. 3 Vertical Miller.
- 1-American 30"x12' Grd. Hd. Screw Cutting Lathe.

Prices On Application

**JOSEPH BEAL & CO.,** Boston, Mass.

Main Office and Show Room, 23-25 Purchase St.



# All At Our Warehouse

**Ready for Inspection—Immediate Delivery**

## Vertical Boring Mills

- |  |   |
|--|---|
| 10 to 16' Niles, 2 heads, heavy duty fine condition. | 60" Niles-Bement-Pond, 2 swivel heads—heavy, latest.    |
| 14' Standard, 2 swivel heads.                        | 42" Bullard, 2 swivel heads (1 with four sided turret.) |
| 10' Hilles & Jones single head.                      | 38" Baush, 2 swivel heads.                              |
| 90" Pond, 2 swivel heads.                            | 30" Bullard, 1 swivel head.                             |
| 72" Bement, single head.                             |   |

## Drills

- |                                     |   |
|-------------------------------------|---|
| 7' American Universal.              | No. 25 Foote-Burt.  |
| 6' Bickford semi-univ. gear box dr. | 10 spindle Bickford Rail 2" capacity.                     |
| 54' Cincinnati, plain, motor drive. | Baush, 5 spindle Multiple, cap. 1".                       |
| 54' Niles semi-universal.           | Baush, 16 spindle Multiple, No. 2.                        |
| 5' Niles-Bement-Pond motor drive.   | 6 spindle Barnes npright double drill press, back geared. |
| 34' Gang, box table, etc.           |   |

## Grinders

- |   |  |
|---|--|
| No. 28 Brown & Sharpe grinding machine 18"x96". | No. 15 Bealy Pattern making, disc. 30"x4". |
| No. 5 Bath Duplex, comp., 98% new.              | No. 24 Bath Universal, complete.           |

## Hammers

- |                                       |                                 |
|---------------------------------------|---------------------------------|
| 250 to 500 lb. Sellers steam drop.    | 300-lb. Bradley, upright helve. |
| 1500 lb. United Eng. board drop.      | 60-lb. Bradley, helve.          |
| 1000 lb. Bliss, board drop.           | 80-lb. Yeakley, pneumatic.      |
| Two (2) 800-lb. Merrill, board drops. | 25-lb. Bradley helve.           |

## Lathes

- |  |                                     |
|--|-------------------------------------|
| 52"x22' New Haven, triple geared face plate drive. | 20"x10' Hamilton, d. b. g.          |
| 50"x18' Fifield triple geared face plate drive.    | 18"x9' Bell semi-quick change, hvy. |
| 26"x12' Putnam, quick change, hvy.                 | 18"x8' L. W. Pond.                  |
| 20"x18' Lodge & Shipley, geared hd.                | 16"x8' Reed Prentice, latest.       |
|  | 16"x6' Reed.                        |
|  | 14"x6' Carroll, taper attachment.   |

## Planers

- |   |                                       |
|---|---------------------------------------|
| 90"x90"x28' Farrell, 2 rail heads.          | 36"x36"x12' Cincinnati, 2 heads hvy.  |
| 60"x48"x20' Gleason, side and 2 rail heads. | 36"x36"x18' Pease, 2 rail heads.      |
| 42"x42"x12' Pond, 2 rail heads.             | 30"x30"x 6' Gray, 1 rail, 2 side hds. |

## Presses

- |   |   |
|---|---|
| TWENTY FIVE (25) FARRELL, (10 Double acting, 15 SINGLE) NUMBERS 1 to 6, STROKES 2" to 9.) | No. 512 Bliss, 33 tons working pressure.                                    |
| No. 27-K Bliss, weighs 70,000 lbs.  | Adriance Inclined, 22"x30" platen, 14" stroke.                              |
| DA-4 Ferracute roll feed, double acting.  | No. 1 Bliss str. side, grd., 14" stroke. Ferracute knuckle joint, 100 tons. |

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### NEW MACHINES IN STOCK

4' Fosdick Radial Drill.  
23" and 25" Snyder Drill Presses.  
No. 32-B Demco Floor Type Drill Presses, two and three-spindle.  
No. 2 Washburn Shops two-spindle Drill.  
No. 4 Kemp Smith Plain Maximiller.  
No. 28 Ohio Plain Milling Machine.  
16" and 24" Ohio Shapers.  
10x30 Webster & Perks Universal Grinder.  
No. 2 Grand Rapids Universal Grinder.  
16"x7" Chard Lathes.  
6x6 and 9x9 Peerless Hack Saws.  
No. 2 Toledo Hand Screw Machine.  
No. 0 Bickett Profiling Machines.  
No. 2 Garvin Screw Slotting Machines.  
No. 4 Canton Floor Crane.  
Nos. 1 and 2 Webster & Perks Floor Type Grinders.

### USED MACHINES IN STOCK

Model C Becker Vertical Milling Machine.  
No. 6 Becker Vertical Milling Machine.  
No. 4B Becker Vertical Milling Machine.  
No. 14 Besly Disc Grinders.  
20" Superior Drill Presses.  
2x24 Jones & Lamson Turret Lathes.  
No. 2-26" and No. 2-36" Brown & Sharpe Gear Cutters.  
6x6 Racine Hack Saw.  
12"x6" Gould & Eberhardt Gear Hobbers.

## The Biggs-Watterson Co.

Cleveland, Ohio. Branches: Dayton, Ohio; Detroit, Mich.

# Grand Rapids Specials

Boring mill, horizontal No. 0.  
Compressor, 4½x5 Imperial type  
No. 2. (2).  
Die filer, No. S-1 Oliver, 60 cyc.  
Drill, No. 2½ Avey h. s., 12"  
overhang  
Drill, 26" Sibley, sliding head.  
Drill, 10-spindle Grand Rapids  
multiple.  
Electric furnace, Haskins type  
FB-208.  
Grinder, No. 1 Willey electric  
tool post.  
Grinder, No. 1 W. & M., surface.

Grinder, 8x30 Modern.  
Grinder, No. 2 Bath universal.  
Hammers, 100 lb. Little Giant, (2)  
Hammers, 250 lb. Little Giant, (2)  
Millers, No. 7 Becker Lincoln, (2).  
Miller, No. 34 Ohio heavy plain.  
Millers, No. 1-B Fox plain, (2).  
Planer, 36"x36"x8' New Haven.  
Punch & shear, No. 54 Beloit.  
Press, No. P-3 Ferracute.  
Radial, 3' Grand Rapids sens.  
Radial, 3' Economic.  
Sand blast, Pangborn type AC-6.  
Shaper, 16" Barker.

*Complete list on application*

## McMullen Machinery Company

"Everything in Shop Equipment" Grand Rapids, Mich.

# PARTIAL LIST

## USED MACHINERY

### In Cleveland Stock

#### BORING MILLS

- |                                   |                                  |
|-----------------------------------|----------------------------------|
| 3-54" Bullard Maxi-Mills 2 heads. | 1-100" Betts Tire Mill, 3 Heads. |
| 1-72" Betts 2 heads.              |                                  |

#### BROACHING MACHINES

- 1-No. 0 J. N. Lapointe.

#### DRILLS

- 1-20" Four Spindle Barnes Upright, power feed.  
 2-28" Aurora Sliding Head.  
 1-24" Fosdick Radial with 3 H. P. Var. Speed D. C. Motor.  
 1-3" Bickford Radial with 3 H. P. Var. Speed D. C. Motor.  
 1-4" Cincinnati Bickford Plain Radial.  
 1-4" Henry & Wright Radial.  
 1-5" Cincinnati Bickford Universal Radial, gear box drive.  
 1-5" Fosdick Radial with 7½ H. P. Var. Speed D. C. Motor.  
 1-6" Cincinnati Bickford Radial Gear Box Drive.  
 1-6" Prentice Radial with 7½ H. P. D. C. Motor.

#### GEAR CUTTERS

- |   |                           |
|---|---------------------------|
| 2-35"x9" Gould & Eberhardt Horizontal Type. | 1-No. 2 Whiton Automatic. |
|---|---------------------------|

#### GRINDERS

- |                                    |                                  |
|------------------------------------|----------------------------------|
| 1-Ingersoll Cutter Grinder.        | 1-10x24 Norton Sgl. Purpose Mch. |
| 9-No. 18 Bryant Internal.          | 1-Garrigus Ring.                 |
| 3-No. 14 Cincinnati Cutter & Tool. | 1-12"x96" Landis Universal.      |
| 6-4-spindle Foote-Burt Valve.      | 1-14x72 Norton.                  |

#### HAMMERS

- |  |  |
|--|--|
| 3-No. 3-A High Speed Riveting on Pedestal. | 1-35 lb. Williams-White, Power Tire Welding. |
|--|--|

#### LATHES

- |   |  |
|---|--|
| 20-8"x60" Fitchburg "Lo-Swing".                     | 1-16"x 8' Monarch 4-step Cone.                         |
| 12-8"x12" Sundstrand.                               | 1-18'x10' Shumacher D. B. G. Quick Change 3-step Cone. |
| 1-16"x 8' Draper Quick Change D. B. G. 5-step Cone. | 1-22"x14' Niles Heavy 4-step Cone.                     |
| 1-16"x 8' Greaves-Klusman.                          | 1-30"x14' Pond Heavy 5-step Cone.                      |

#### MILLING MACHINES

- |                        |                                    |
|------------------------|------------------------------------|
| 2-Type "A" Briggs.     | 2-10" Pratt & Whitney Automatics.  |
| 3-No. 15 Garvin Plain. | 1-No. 14 Brown & Sharpe Universal. |

#### PISTON RING MACHINES

- |                     |                         |
|---------------------|-------------------------|
| 3-Gridleys (Plain). | 2-Gridleys (Eccentric). |
|---------------------|-------------------------|

#### SHAPERS

- |                    |                                 |
|--------------------|---------------------------------|
| 1-16" Ohio (Cone). | 1-20" Gould & Eberhardt (Cone). |
|--------------------|---------------------------------|

#### THREAD MILLER

- 1-No. 10 Moline "Hole Hog."

#### TURRET LATHES AND SCREW MACHINES

- |                                   |                          |
|-----------------------------------|--------------------------|
| 8-24"x26" Cinti-Acme Flat Plain.  | 1-13" Gisholt.           |
| 10-34"x36" Cinti-Acme Flat Plain. | 1-1"x7" Cincinnati-Acme. |
| 1-2" Cleveland.                   | 7-21" Gisholts.          |
| 1-No. 7 Bardons & Oliver.         | 8-24" Gisholts.          |

*We Re-Build the Machine. We Also Purchase Modern Tools.*

## THE NOTCH & MERRYWEATHER MACHINERY CO.

CLEVELAND

DETROIT

CINCINNATI

PITTSBURGH

## BENNETT BARGAINS

### Planers

18-22-26-30-32-42-54-60" between housings; 1-2-3-4 heads.

### Vertical Boring Mills

30", 36", 40", 51" and 75".

### Horizontal Boring Machines

2½", 3", 4"; also 5" Barrett type.

### Radial Drills

2½" and 4" - Plain and Universal.

### Upright and Multiple Drills

12"-20"-24"-36" and 42"; also 2, 3 and 6 spindle.

### Lathes

Various sizes from 14" to 102" swing, 6' to 22' beds.

### Turrets

2x24", 3½", 20x6", also 20", 28" and 34".

### Milling Machines

48x36x14' Ingersoll 4 heads; 20"x7' Brainerd Slab; No. 3 Newton Duplex, No. 24 Garvin vertical; No. 2 H. & J. vertical; Nos. 4 & 5 B. & S. Plain; No. 2 Plain L. & D; others.

### Shapers; 36" and 14". Slotters; 12" Betts, 54".

Also Punches and Shears, Gear Cutters, Grinders, Hammers, Presses, Cranes, Bolt and Pipe Machines

*Advise us of all equipment you wish to purchase or sell*

**G. L. Bennett Machinery Co., Inc.**

30 Church Street . . . New York City

### New Boston Show Rooms

## W. H. J. Fitzgerald & Co.

30 Oliver St., Boston

- 1 Foote-Burt Company No. 23 Heavy Duty Drill, 20" swing, single belt drive, capacity ¾" to 1¼", guaranteed good as new.
- 2 No. 2 Warner & Swasey Turret Screw Machines, plain head, automatic chuck, bar feed, hand longitudinal feed to cut-off, with power feed to hexagon turret.
- 2 No. 1 Warner & Swasey Turret Screw Machines, plain head, automatic chuck, bar feed, lever feed to cut-off only, automatic chuck capacity ¾".

These machines are in A-1 condition.

### Six ¼ Inch Automatic Screw Machines (Stehli Patent)

Each fitted with screw slotting attachment. Manufactured by Hartford Machine Screw Company. These machines adapted to the rapid production of all kinds of small screws, bushings, studs, etc. Condition, good as new.

# Our Guarantee

## Money Back If Not Satisfied

### Drills—Radials and Multiples

- 1—3½' Prentice Radial, with gear change box, single pulley drive.
- 1—4' Universal Radial, arranged for motor drive.
- 1—No. 30 Natco 34-spindle Multiple, motor drive, good as new.
- 1—Baush 12-spindle Multiple, equipped for 24 spindles, capacity ½" to 1½".
- 4—Hoefler Drills, 21", 24", 26" and 28".
- 1—26" Barnes Sliding Head Drill, tapping attachment, b. g., p. f.

### Rolls and Bulldozers

- 1—No. 4 Rock River Bulldozer, arranged motor drive, 20" stroke, size cross head 57"x12", die space at end of stroke 38".

### Grinders

- 1—10x36" Thompson Full Universal Grinder.
- 1—No. 2-A Landis 16x32 Universal Grinder.
- 1—No. 2 Manhattan Surface Grinder, (new).
- 1—Grand Rapids Drill Grinder, ½" to 2½" capacity.
- 1—No. 2 Woods Universal Cutter and Tool Grinder.
- 1—No. 2 Brand New Oakley Universal Cutter and Tool Grinder.

### Shapers

- 1—16" Smith & Mills B. G. Crank Shaper.
- 3—16" Whipp S. G. Crank Shapers, (new).
- 2—30" Ohio B. G. Crank Shapers, (new).
- 1—Each 16, 18, 21 and 24" Hollingworth Bk. Geared Crank Shapers, (new).

### Millers

- 2—No. 2½ American Plain Millers, (new).
- 1—No. 2 American Plain Miller, (used).
- 1—Each Nos. 2-B and 2 Rockford Universal Millers, (new).
- 1—No. 0 Bickett Vertical Miller and Profiler.
- 2—No. 1 U. S. Hand Millers.

### Lathes

- 1—24" Gisholt Turret, chucking equip., taper att., rapid traverse, (modern).
- 1—26"x164" Solid Spindle, Back Gear, Compound Rest, Engine Lathe.
- 1—15"x6" Jones & Lamson Engine Lathe, hollow spindle, complete with plain rest, countershaft, face plate, wrenches, etc.
- 1—17"x8" Perkins Engine Lathe, hollow spindle, complete with plain rest, countershaft, face plate, wrenches, etc., in first-class operative condition.
- 1—Each Sidney Medium Pattern Lathes, 14, 16, 18 and 20" Swing by 6, 8 and 10" Beds, all 3-step cone, d. b. g., c. g.
- 1—Each Sidney Heavy Duty Lathes, 15, 17, 19, 25 and 27" Swing by 6, 8, 10, 12 and 14" beds, 3-step cone, d. b. g., c. g.
- 1—14" Flather Lathe, p. r., h. s.

### Miscellaneous

- 1—No. 6 Quickwork Rotary Shear, 48" throat, 1" cutting capacity.
- 1—24"x24"x6" Gray Planer, one head on cross rail.
- 1—26"x24"x6" Pond Planer, 2 heads.
- 1—No. 2 Royersford Double End Punch and Shear, 7½" throat, cap. ½"x1½".
- 2—No. 7 Long & Allstatter Punch and Shears, approx. 5" throat, cap. ½"x1½".
- 1—No. 3 Long & Allstatter ¾" Tire Welder.
- 1—6-A Toledo Butt Welder, capacity 1½" round.
- 1—Williams Pipe Machine, capacity ½" to 2".
- 1—No. 3 Brown & Sharpe 26" Gear Cutter.
- 1—21" Westcott 4-Jaw Spur Gear Scroll Combination Chuck.

*Send for Our Complete List of Machinery No. 220*

**Wayne Machinery Company**  
**Fort Wayne, Indiana**

Branch Office and Warehouse: 18 W. Second St., Dayton, Ohio

## You'll Appreciate These Values in Used Equipment

and these are not all, we have a large and varied stock

### LATHES.

LeBlond 17", with turret on car.  
Seneca Falls 10"x4", with equipment.  
American 14"x6", T. A. and D I Attachment.  
Worcester 14"x6", with 10" chuck.

### DRILLING MACHINES.

Bickford 3' Plain Radial, Cone Drive.  
Allen Two Spindle B. B. Sensitive.  
Washburn 14" Sensitive.  
Dwight-Slate Two Spindle Sensitive.

### SCREW MACHINES.

Garvin 8" Capacity, Hand, A. C. and W. F.  
Gridley 14" Auto., Rebuilt.  
Southworth No. 2 Hand, 1" capacity.  
National Acme No. 55, 1 1/2" Capacity Auto.

### MILLING MACHINES.

Brainerd No. 21 Knee Type.  
Brainerd 84" Planer Type.  
Brown & Sharpe No. 4-B Heavy.  
Brainerd Spline, 46" table feed.

### MISCELLANEOUS.

Bliss No. 59 Embossing Press, 200 ton cap.  
P. & W. 52"x52"x20" Planer, two heads.  
Rand Duplex Single Stage Air Compressor 13x26x20.  
Rand Duplex Single Stage Air Compressor 10x24x20.

**LYND-FARQUHAR CO., Dept. G** Quality Machine Tools  
BOSTON, MASS.

## DESIRABLE — DEPENDABLE — REASONABLE

We are not the biggest—but, gentlemen, WE ARE THE BEST

### IN STOCK — IMMEDIATE SHIPMENT

#### PRESSES.

Bliss No. 52 b. g., str. side, pwr.	Ferracute No. C3 inc., 2" st., A1.
Ferracute No. C2 inclinable, 2" stroke, like new.	Bliss No. 8 bench power, with and without dial.
Consolidated No. 2 1/2 inc., 2" st., like new, also with dial fd. att.	Baird bench power, like Bliss No. 8.

#### MILLING MACHINES.

Brown & S. No. 2 pl., gr. box. (3).	Cincinnati No. 2 plain, (2).
Brown & Sharpe No. 3 univ.	Becker Brainerd No. 2 pl., g. box.
Brown & Sharpe No. 1 plain.	Garvin No. 13 plain.
Cincinnati No. 3 universal.	Standard No. 1 hand & weight fd.

#### LATHES.

Reed, 20"x14", complete equip.	Hendey, 14"x 6", q.c.g. taper, etc.
Reed, 18"x12", taper, etc.	Hendey, 18"x12", q.c.g. taper, etc.
Reed, 20"x10", oil pan, etc.	About 15 others.

#### MISCELLANEOUS.

Boring mill, 3" bar Niles, horiz., grd., complete, excellent condition.  
Planer, 30x30x8' Woodward & Powell, 2 heads.  
Planer, 42"x42"x14' Betts, 2 heads, motor drive.  
Planer, 48"x48"x18' Betts, 4 heads, motor drive.

**RADIAL DRILLS, Precision Machines, Foot Presses, Small Tools, etc.**

**See Us First—Save Time and Money**

**AETNA MACHINERY CORP'N, 15 Mechanic St., Newark, N. J.**

Most Progressive and Up-To-Date Machinery House in New Jersey

# Good Used Tools

We offer the following used machine tools. Further particulars gladly given on receipt of request. We have facilities for overhauling used machinery and aim to offer only trustworthy machines.

## BORING MACHINES.

Bement-Miles horizontal, 24" bar, 20x30 cross table.  
No. 2 Beaman & Smith horizontal boring machine, 4" dia. spindle, 63" traverse of head, 1/2 h. p. Reliance motor, 2 h. p. head elevating motor.

## DRILLING MACHINES.

No. 1-1 spindle Avey, bench (23).  
No. 2-2 spindle Avey.  
2-sp. Taylor & Fenn manufacturing.  
3-sp. Taylor & Fenn manufacturing.  
4-sp. 20" Hoefer, b. g., p. f.  
23" Rockford sliding head.  
24" Mechanics sliding hd., b. g., p. f.  
42" Cincinnati-Bickford sliding hd., cone drive.  
26" Barnes, sliding hd., b. g., p. f.  
42" Bickford plaid radial, tapping attachment.  
3' Gang pl. radial, tapping, pl. table.  
8' Lengthened to 6' Prentice Bros. plain radial.  
No. 1 Bickford plain radial, tapping, gear box belt drive, box table.  
6-sp. Hendey, power feed to each spindle.  
16-sp. Bausch drill, 1 1/2" spindles.

## GRINDERS.

No. 4 12x60 Landis universal.  
6x32 Norton plain.  
No. 2 Oakley univ. cutter and tool.  
No. 1 Norton cutter and tool, (2).  
No. 11 Rivett, oscillating.  
No. 70 Heald internal.  
No. 1 Hartford auto. surface.  
No. 5 Rivett hand feed oscillating.  
Garrigus rotary surface (8).  
No. 16 Blanchard high pwr. vertical surface, 30" mag. chuck, 230 v., d.c.  
20" Besly disc (2).  
No. 34 Van Norman internal with water att., (2).  
20x2 Taylor & Fenn.  
20" Taylor & Fenn wet tool, (8).  
Pratt & Whitney vertical surface.  
Reed Prentice surface.

## LATHES.

16x9 Lehmann, q. c., taper, oil pan.  
18x8 Perkins.  
18x10 Robbins.  
18x8 Prentice Bros., geared head, single pulley drive, q.c., c.r., p.c.f., oil pan, chuck fitted.  
16x6 Cincinnati, q. c., d. b. g.  
21x8 Lodge & Davis, 2 chucks.  
22x8 Schumacher-Boye, chuck.  
26x12 Putnam, c. r., d. b. g.  
44x16 Putnam, single back grs., c.r., p.c.f., s.r., 4" raising blocks.  
56"x24" Wood & Light, b.g., c.r., p.c.f.  
38x20 New Haven, steady and follower rests, change gears.

## MILLING MACHINES.

No. 14 Garvin plain, (4).  
No. 14A Garvin plain, (7).  
No. 15 Garvin plain.  
No. 1 1/2 LeBlond univ., motor dr.  
No. 2 Owen plain.  
Type A Briggs plain.  
No. 3 Becker vertical.  
No. 1 Steptoe plain.

## SCREW MACHINES.

1-15/16 Garvin wire feed.  
2x24 J. & L. flat turret, cone dr., (3).  
No. 2 1/2 Garvin single geared wire feed, (2).  
24" Gisholt turret.  
24x10 Lodge & Davis, oil pan. power feed to turret.  
4 1/2" Cleveland automatics.  
20" J. & L. geared head, spindle chucking equip. 4 1/2" hollow sp.

## MISCELLANEOUS.

Gear cutter, 24x8 G. & E. spur and bevel.  
Gear cutter, No. 4 B. & S. auto.  
Gear cutter, No. 3A Cinn. auto spur.  
Planer, 24x24x6 Flather.  
Planer, 24x24x6 Putnam.  
Planer, 36x36x8 Pond.  
Planer, 30x30x8 Woodward & P. 2 hds.  
Screw machine, 4-spdl. auto. No. 515.  
National Acme arranged for motor.  
Shaper, 15" Hendey motor driven.  
Shaper, 20" Hendey motor driven.

## Henry Prentiss & Company

Incorporated

149 Broadway

New York

# "New York's Greatest Clearing House—J. J. McCabe Lathe & Machinery Corporation"

Unusual trade conditions have resulted in many "under value" purchases, which we offer you the benefit of at special price inducements. What you can get in 10 brand new Planers, 12 absolutely new Shapers, 22 new improved Radial Drills, 75 latest pattern high duty Lathes—the largest stock of new quick-change Lathes in the country, new Bending Rolls, new Punches and Shears, 3 nearly new Slotters, and an immense assortment of Used Tools, not the "usual kind."

## All for Immediate Shipment

### SHAPERS.

With higher prices of Shapers going into effect, this fine lot of high-grade NEW Shapers at the "old" low prices, is important to all shops.

- 4-12" stroke, Plain.
- 3-14" stroke, Plain.
- 1-16" stroke, Plain.
- 1-20" stroke, Back-geared.
- 1-25" stroke, Back-geared.
- 1-32" stroke, Back-geared.
- 1-22" stroke, Back-geared.
- 1-22" stroke, Back-geared.

### NEW "PLANNER TYPE" MILLING MACHINE.

53" between housings, 45" under rail, table 16" long, complete with 4 hds.; 2 vertical on crossrail, 2 horizontal, 1 each housing, arranged for motor or c. s. drive.

### PLANERS.

They won't last long, owing to the scarcity of even used machines, and the Planer Manufacturers being sold ahead several months. Besides, these New Planers are being sold at 10% below regular selling prices of other similar High-grade Planers.

- 2-24"x24"x1 head on rail.
- 2-36"x36"x10 2 heads on rail.
- 2-36"x36"x12 2 hds., 2 rail, 1 each housing.
- 1-48"x48"x16 4 hds., 2 rail, 1 each housing.

- 21" swing, 14' bed, 10' 4" centers.
- 21" swing, 12' bed, 8' 4" centers.
- 21" swing, 10' bed, 6' 4" centers.
- 18" swing, 14' bed, 10' 4" centers.
- 18" swing, 12' bed, 8' 4" centers.
- 18" swing, 10' bed, 6' 4" centers.
- 18" swing, 8' bed, 4' 4" centers.
- 16" swing, 10' bed, 6' 4" centers.
- 16" swing, 8' bed, 4' 4" centers.
- 16" swing, 6' bed, 2' 6" centers.
- 14" swing, 6' bed, 2' 6" centers.

### McCABE'S NEW "ALL-IN-ONE" SLIDING GEARED HEAD QUICK-CHANGE ENGINE LATHES.

All sizes of Lathes in one, from 24" swing, back-geared 13 to 1 to 40" swing, triple-geared 136 to 1.

Any length bed can be furnished. 12, 18 & 22' beds are available for early shipment.

Much as \$1,000 to \$2,000 can be saved from the price of the regular style Geared Head 40" swing lathe, which lacks the extra cap. of the McCabe "All-in-One" mchs.

### RADIAL DRILLS (NEW).

- 6-24" arm, speed-box, tapping attachment.
- 2-24" arm, 30' drive, tapping attach.
- 2-30" arm, 30' drive, tapping attach.
- 6-30" arm, 30' drive, tapping attachment.
- 6-1" arm, 24" drive, tapping attachment.

### NEW PUNCHES & SHEARS, S. E.

### OTHER HIGH-GRADE TOOLS.

- Planer, 24"x24"x 6' Gray, one head.
- Planer, 40"x40"x12' New Haven, 1 head.
- Vertical Shaper, 6" str., Pratt & Whitney.
- Traveling-head Shaper, 12" str., Fitchburg.
- 4-spindle Drill, Niles Tool Works, 3" cap.
- Cold Saw, 28" Espen-Lucas, cap. 9" round.
- Nut Tapping Machine, 6-spindle, Acme.
- Pipe Machine, 4" cap., new dies, Williams.
- Pipe Machine, 6" cap., new dies, Jarecki.
- Shaft Straightening Machine, round bars 14 to 40" dia., up to 25' in length, Medart.
- Bolt Heading Machine, cap. 14", Burdick.
- 20-t. Air Crane, with 5-ton Auxiliary Hoist, 15 h. p. Gas Engine, 10 h. p. motor, etc.

### "USED" MACHINE TOOLS

We never take into our stock old tools that are no longer in demand, nor the kind that have to be rebuilt or re-made over.

### LATHES.

- 36" Sw., 20' bed, Putnam, with chuck, etc.
- 36" Sw., 16' bed, Putnam.
- 30" Sw., 14' bed, Bement-Miles, tri.-grd.
- 28" Sw., 10' bed, Pittsburgh, 3-step cone.
- 24" Sw., 8' bed, Bement-Miles, tri.-grd.
- 24" Sw., 6' bed, New Haven.
- 17" Sw., 8' bed, New Haven.
- 17" Sw., 6' bed, New Haven.



ular selling prices of other similar High-grade Planers.

- 2-24" x 24" x 16" 1 head on rail.
- 2-36" x 36" x 16" 2 heads on rail.
- 2-36" x 36" x 12" 4 hds., 2 rail, 1 each housing.
- 1-48" x 48" x 16" 4 hds., 2 rail, 1 each housing.

#### SLOTTERS.

A timely offer at a tempting price. Mighty few are the large Slotters available for immediate shipment. These 3 machines were built last year, and we are enabled to sell them at HALF the new cost, or near that.

3-Niles-Bement-Pond latest heavy pattern Slotting Machines, each 24" adjustable stroke, complete with motor-drive, including motors, d. c., 220 volts.

NEW 14' UPRIGHT BORING MILL. Standard heavy pattern Niles type, 2 heads on crossrail, arranged for motor or c. s. drive, 10' table.

#### NEW HIGH DUTY LATHES.

3-Step Cone, Double B. G.

Over 75 in Stock.

All-steel gear, quick-change gear mechanism. All-steel gears in apron. Latest improved construction. Great buying means lowest buying, which means lowest prices to you. A number of each can be furnished in some of these sizes.

- 36" swing, 18" bed, 11" centers.
- 36" swing, 18" bed, 9" centers.
- 30" swing, 20" bed, 19" centers.
- 30" swing, 18" bed, 11" centers.
- 30" swing, 18" bed, 9" centers.
- 30" swing, 14" bed, 7" centers.
- 29" swing, 22" bed, 16" centers.
- 29" swing, 20" bed, 14" centers.
- 29" swing, 18" bed, 12" centers.
- 29" swing, 16" bed, 10" centers.
- 26" swing, 16" bed, 10" centers.
- 26" swing, 14" bed, 8" centers.

- 6-24" arm, speed-box, tapping attachment.
- 2-24" arm, 3" eye, tapping attachment.
- 2-24" arm, 3" eye, tapping attachment.
- 2-24" arm, 3" eye, tapping attachment.
- 2-24" arm, 3" eye, tapping attachment.

#### NEW PUNCHES & SHEARS. S. E.

Interchangeable from Punch to Shear.

3-36" tht., wt. 25,000 lbs., arr. for belt-dr.

2-30" tht., wt. 35,000 lbs., arr. for mot-dr.

#### 2 SETS NEW 10' BENDING ROLLS.

10' 2" bet. housings; rolls set in "pyramid" form, top roll counter-balanced, end housing hinged. Top roll 94" diam. two lower rolls 64". Weight 17,000 lbs.

#### 14' SET BENDING ROLLS.

14' 2" bet. housings; rolls set in "pyramid" form, top roll counter-balanced, end housing hinged. Top roll 14" diam. two lower rolls 10". Power for raising and lowering top roll. Complete with 20 h.p. motor. All absolutely A-1.

#### 60" GAP HORIZONTAL PUNCH.

60" gap Hilles & Jones No. 6 heavy horiz. punch, cap. for punching about 34" holes thru 1" plate. Wt. 66,000 lbs. Arranged for motor drive, without motor.

#### HYDRAULIC RIVET'G EQUIPMT.

8 cap Bement-Miles Bull Riveter, with accumulator, pump, overhead crane, etc., complete, cap. for driving 14" rivets.

#### MORE PLATE-SHOP TOOLS.

Bending Rolls, 8" bet. housings, 12" rolls, 18" swing, 10" bed, 6" 4" centers.

Vertical punch, qk.-acting, 14" tht., 4" cap.

Shear, 36" throat, capacity 4" plate.

Air Riveter-portable, 19" gap, cap. 14" rivets.

Punch, Pels portable.

#### CUTTING-OFF AND CENTERING

Bement-Miles, for cutting off both ends at the same time of Axles and Shafts from 3" to 9" diam., 14" bed. Wt. abt. 12,000 lbs.

- 30" Sw., 14" bed, Bement-Miles, tri-grd.
- 28" Sw., 30" bed, Pittsburgh, 3-step cone.
- 28" Sw., 14" bed, Bement-Miles, tri-grd.
- 24" Sw., 14" bed, New Haven.
- 21" Sw., 8" bed, New Haven.
- 17" Sw., 8" bed, Bridgeford, taper.

#### McCABE "DOUBLE-SPINDLE" LATHES.

26-48" Swing, 14" bed, with geared face-plate, complete with General-Electric a. c. motor, like new. Complete capacity of two (2) Lathes on one bed, with dbl. the thread-cutting and feeding range.

#### TURRET LATHES.

3" x 36" Jones & Lamson, 2 with chucking equip., sliding-hd., single pulley drive.

28" Pond "Rigid type" with 4" hollow spdl., rapid traverse to turret, etc.

21" 32" swing in the gap, Gisholt.

20" Turret Chucking & Turning Machines, Potter & Johnston, 2" hole.

#### MILLING MACHINES.

No. 3 Cincinnati (4 in stock) Plain Millers, working surface of tables 48" x 12".

No. 22 Brainerd Plain, table 48" x 14".

Newton Pl., hor. & vert. hd., table 60" x 12".

#### UPRIGHT BORING MILLS.

37" 2 heads, Bausch, speed-box.

40" turret head, Brown & Sharpe.

4" sp. 5" over bar, "Lucas type" spd.-box.

3" bar, Fitchburg, "Knee type."

#### GRINDERS.

Universal, No. 2, swings 12" x 36" bet. full equipment.

Roll Grinder, table 96" x 38" and 44" between, Diamond.

Roll Grinder, table 66" x 12" and 36" between, Bridgeport.

Surface Grinder, planer type, 26" between housings, 8" table.

**J. J. McCabe Lathe & Machinery Corporation, 149 Broadway, New York**

# Syracuse Supply Company Bargains

## USED TOOLS

- 1 Walcott 14x6 D. B. G., Q. C. G. Lathe, oil pan.
- 1 Prentiss 16x8 S. B. G., P. C. G. Lathe.
- 2 Bridgeford 26" H. D. Chucking Lathes, complete.
- 3 Bullard 21" Lathes, 2 Model H, 1 Model L.
- 1 Kokomo 10" Sensitive Drill, 36x36 table.
- 1 Prentiss 36" H. D., S. H. Drill, B. G., P. F.
- 1 Becker No. 4B Vertical Milling Machine.
- 1 Norton No. 1 Universal Tool & Cutter Grinder, P. F.

## NEW TOOLS

- 1 Cleveland No. 1 Hor. Boring, Drilling, Milling Mch.
- 3 Wisconsin Hand Milling Machines.
- 1 Fox No. 1C B. G., P. F. Milling Machine.
- 4 Monarch 24"x19" D.B.G., Q.C.G. Lathes complete.
- 3 Monarch 18"x8" D.B.G., Q.C.G. Lathes complete.
- 2 Kokomo 21" S. H., B. G., P. F. Drill Presses.
- 4 Detroit Model L-1 H. S. Sensitive Drill Presses.
- 1 Canedy-Otto No. 101 Radial Drill Floor Type, 34' arm.
- 1 Frankfurt No. 22 Furnace, with gas burners.

BUFFALO  
20 W. Genesee St.

ROCHESTER  
306 Arlington Bldg.

SYRACUSE  
W. Fayette St.

## Syracuse Supply Company

## Fully Guaranteed Used Machine Tools

- 1-No. 1 Lucas Horizontal Boring Mill.
- 2-No. 3-A Potter & Johnston Chucking Machines.
- 2-2 spindle Henry & Wright Ball Bearing Drill Presses.
- 1-14" Hoefler Sensitive Drill Press.
- 1-each 24" and 36" Barnes Sliding Head Drill Press.
- 1-4' Dreses Radial Drill.
- 1-No. 2 Brown & Sharpe Universal Grinder.
- 1-each No. 17 and No. 26 Besly Disc Grinder.
- 1-No. 3 Heavy Brown & Sharpe Gear Cutter.
- 1-each No. 4 and No. 5 Brown & Sharpe Cutter Grinder.
- 1-24x6' Gould & Eberhardt Gear Cutter.
- 2-A-9" Hardinge Precision Bench Lathes.
- 2-18x8' Reed-Prentice Engine Lathes, 4 Step Cone.
- 1-8" L<sub>0</sub> Swing Lathe.
- 1-20x10' Boye & Emmes Engine Lathe.
- 1-22x10' Lodge & Shipley Lathe.
- 1-No. 5 Brown & Sharpe Vertical Milling Machine.
- 1-Oesterlein Milling Machine.
- 8-9" Brown & Sharpe Double End Polishing Lathes.
- 1-24" Ohio Shaper.
- 11-No. 2 Warner & Swasey Plain Head Turret Screw Machines.
- 9-No. 4 and 1 No. 6 Warner & Swasey Screw Machines.
- 8-No. 55 National Acme Screw Machines.
- 17-34" Gridley Single Spindle Screw Machines.
- 6-24" Gridley 4 Spindle Screw Machines.
- 13-No. 2 Smurr & Kamen Screw Machines.

**M. J. Walsh Machinery Co., 141 Sycamore St., Milwaukee, Wis.**

# New Machinery For Sale

In Stock at Chicago and New York

## Lathes

26"x12' Wickes, q. c. g., d. b. g.  
24"x13' Chard, q. c. g., d. b. g.  
24"x10' Advance, q. c. g., d. b. g.  
20"x11' Chard, q. c. g., d. b. g., (2).  
20"x 9' Chard, q. c. g., d. b. g.  
18"x 9' Chard, q. c. g., d. b. g. (3).  
16"x 8' Cleveland, tool room.  
16"x 7' Chard, q. c. g.  
18"x 6' Cleveland tool room, (3).

14"x 6' Amtew, d. b. g.  
12"x 4' 6" Cleveland precision, (3).  
12"x 5' 6" Davis tool room, (2).  
12"x 4' 3" Shepard.  
6"x36" Dalton bench lathe.  
No. 52 Sloan & Chase bench lathe.  
Full line, Rivett precision bench lathes.

## Drilling Machines

4 1/2' Morris plain radial.  
4' Western heavy pattern plain.  
3' Western manufacturing radial.  
3 1/2' Canedy-Otto radial, (3).  
36" Snyder traveling head.  
32" Cleveland sliding head, (3).  
28" Cleveland sliding head, (3).  
25" Cleveland, upright.  
23" Snyder upright (5).  
22 1/2" Cleveland upright, (4).

21" Cleveland upright, (8).  
20" Canedy-Otto, upright, (2).  
20" Wisconsin, all-g geared.  
20" Milwaukee, lever feed, (2).  
Nos. 1, 2 & 3 spdl. Demco, h. s., b. b.  
2 spindle Cleveland, h. s., b. b.  
14" U. S. sensitive.  
Belt driven bench.  
Motor driven bench.  
Portable electric.

## Milling Machines

No. 2 Cleveland universal, (4).  
No. 2 Cleveland, plain, (2).  
No. 2-A Fox universal.  
No. 2-B Fox plain, (3).

Nos. 1-A, 1-B and 0-B Fox plain.  
No. 3 Becker standard vertical.  
Nos. 2 and 3 Burke bench.

## Grinders

No. 3 Modern universal, (2).  
No. 2 Wilmarth & Morman surface.  
24" Milwaukee wet tool.  
Cleveland profile, (2).  
No. 1 Norton cutter and tool.  
Hartford surface.  
Grand Rapids drill—various sizes.

Yankee drill—various sizes.  
5x18 Ott plain.  
10x32 Ott universal.  
Partridge floor stand—various sizes.  
Portable electric.  
Full line Rivett precision internal.

## Miscellaneous

Arbor presses, Atlas, all sizes.  
Filing machine, Nos. 2 & 3 Barry.  
Gear hobbers, No. 3 Farwell, (2).  
Hack saws, Peerless, 6x6, 9x9 & 13x16  
Punch and shear, No. 12 Beloit.  
Shaper, 16" Walcott.

Shaper, 16" Milwaukee.  
Shaper, 18" Barker.  
Shaper, 20" Milwaukee.  
Shaper, 24" Milwaukee.  
Shaper, 24" Barker.  
Full line Pexto Tinnars' Tools.

## USED MISCELLANEOUS

Drilling and tap'g mche., Murchey.  
Grinder, tool post.  
Lathe, 12"x 5' Robbins.  
Lathe, 16"x 6' Morris.

Lathe, 16"x 8' LeBlond.  
Shaper, 16" Smith & Mills.  
Turret lathe, 24" Steinle.

# Dale-Brewster Machinery Co., Inc.

541-7 W. Washington Blvd., - - - Chicago

54-60 Lafayette St., - - - New York

Address all inquiries attention Department A

## Classified Finding Index

### Abrasives

Buchanan Co., Thos., Cincinnati

### Angle Plates

Boston Scale & Mchs. Co., Roxbury, Mass.  
Heid Brothers Co., Inc., Beverly, Mass.  
Whiting & Comstock, Hartford, Conn.

### Arbors, Roller Grip

Alert Tool Co., Philadelphia

### Arbors, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.  
E. O. Partridge 2047 W. Lake St., Chicago

### Automatics

McDonough Mfg. Co., Eau Claire, Wis.  
National Acme Co., Cleveland  
New Britain Machine Co., New Britain, Conn.

### Balancing Ways

Anderson Bros. Mfg. Co., Rockford, Ill.

### Ball Bearings

Abbott Ball Co., Hartford, Conn.  
Gwilliam Co., 253 W. 58th St., New York

### Balls, Brass, Bronze and Steel

Abbott Ball Co., Hartford, Conn.  
Gwilliam Co., 253 W. 58th St., New York

### Band Saw Machines, for Metal

Armstrong-Bloom Mfg. Co., 341 N. Francisco  
Av., Chicago

### Barrels, Tumbling

Abbott Ball Co., Hartford, Conn.  
Buchanan Co., Thos., Cincinnati  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago

### Benchs, For Toolmakers

Elitchie-Wertz Co., Dayton, Ohio

### Bench Legs, Steel

New Britain Mchs. Co., New Britain, Conn.

### Bending Machines, Hand and Power

Hendley & Whittemore Co., Reioit, Wis.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
Lourie Mfg. Co., Springfield, Ill.  
Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

### Bending Rolls, Plate and Angle

Wickes Bros., Saginaw, Mich.

### Blue Printing Machines

Paragon Machine Co., Rochester, N. Y.  
Wickes Brothers, Saginaw, Mich.

### Bolt and Nut Machinery

Webster & Perks Tool Co., Springfield, Ohio

### Boring Bars

Alert Tool Co., Philadelphia  
Madison Mfg. Co., Muskegon, Mich.  
Pedrick Tool & Machine Co., Philadelphia  
Ready Tool Co., Bridgeport, Conn.  
Rigid Tool Holder Co., Washington, D. C.  
Underwood Corp., H. B., Philadelphia

### Boring Bars, Cylinder

Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

### Boring, Drilling and Milling Machines, Horizontal

Bearman & Smith Co., Providence, R. I.  
Becker Milling Machine Co., Boston  
Giddings & Lewis Mfg. Co., Fond du Lac, Wis.  
Fawling & Harnischfeger Co., Milwaukee  
Schipper Machine & Tool Co., Aurora, Ind.  
Simmons Machine Co., Albany, N. Y.

### Boring Heads

Waterston, J. M., Detroit, Mich.

### Boring Machines, Cylinder

Burgett Mchs. Tool Co., Mendville, Pa.

### Boring Machines, Horizontal

Cincinnati Pulley Machinery Co., Cincinnati  
Pedrick Tool & Machine Co., Philadelphia  
Rockford Drilling Machine Co., Rockford, Ill.

### Boring and Turning Machines, Vertical

Cincinnati Planer Co., Cincinnati  
Simmons Machine Co., Albany, N. Y.  
Turner Machine Co., Danbury, Conn.

### Bowden Wire Mechanism

Gwilliam Co., 253 W. 58th St., New York

### Brackets, Electric Light

Newman Mfg. Co., Cincinnati

### Broaches

Lapointe Co., J. N., New London, Conn.

### Broaching Machines

Lapointe Co., J. N., New London, Conn.  
La Pointe Mfg. Co., V. E., Manchester, Conn.  
Simmons Machine Co., Albany, N. Y.

### Bushings, Brass and Bronze

Bunting Brass & Bronze Co., Toledo, Ohio

### Case Hardening Compound

Reil & Gossett Co., 613 W. 30th St., Chicago  
Buchanan Chemical Co., C. G., Cincinnati  
Buchanan Co., Thos., Cincinnati

### Castelling Machines

Craftsman Tool Co., Connecticut Ohio

### Casters for Trucks

Hamilton Caster & Mfg. Co., Hamilton, Ohio

### Centers, Index

Abrasive Mch. Tool Co., E. Providence, R. I.  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Carter & Hagen Mch. Co., W. Winsted, Conn.  
Dickow, Fred C., 1858 W. Lake St., Chicago  
Schipper Machine & Tool Co., Aurora, Ind.  
Steptoe Co., John, Cincinnati  
Whiting & Comstock, Hartford, Conn.

### Chains, Power Transmission

Cullman Wheel Co., 1344 Altgeld St., Chicago  
Morae Chain Co., Ithaca, N. Y.  
Whitney Mfg. Co., Hartford, Conn.

### Chasers

Modern Tool Co., Erie, Pa.  
National Acme Co., Cleveland

### Chucking Machines

New Britain Mchs. Co., New Britain, Conn.  
Wood Turret Machine Co., Brazil, Ind.

### Chucks, Air

Frontier Chuck & Tool Co., Buffalo, N. Y.

### Chucks, Centering

Cushman Chuck Co., Hartford, Conn.  
McCroskey Tool Corporation, Mendville, Pa.  
Thomas Elevator Co., 31 So. Hoyle Ave.,  
Chicago

### Chucks, Draw-in and Throat

Hardinge Bros., 1770 Berneau Av., Chicago

### Chucks, Drill

Cushman Chuck Co., Hartford, Conn.  
Dalton Mfg. Corp., 1911 Park Ave., N. Y.  
Hartford Special Mch. Co., Hartford, Conn.  
Jacobs Mfg. Co., Hartford, Conn.  
McCroskey Tool Corporation, Mendville, Pa.  
Modern Tool Co., Erie, Pa.  
Nielsen-Barton Chuck Co., 100 S. Jefferson  
St., Chicago  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago  
Thomas Elevator Co., 31 S. Hoyle Ave.,  
Chicago

Weaver Mfg. Co., Springfield, Ill.

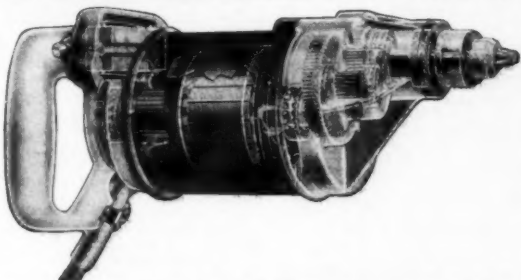
### Chucks, Drill and Tap

Cushman Chuck Co., Hartford, Conn.  
McCroskey Tool Corporation, Mendville, Pa.  
Modern Tool Co., Erie, Pa.  
Peter Bros. Mfg. Co., Algonquin, Ill.  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago

### Chucks, Keyway Cutting

Scully-Jones & Co., Ry. Exch. Bldg., Chicago

# HISEY PORTABLE DRILLS ARE DRILLS



As against a last consideration, HISEY products are *designed* with Ball Bearing construction. Our new all Ball Bearing Electric Hand Drills of original design, shown above, are made in three sizes of following specifications:

Drilling capacities in steel in inches: 3-16",  $\frac{1}{4}$ ", 5-16". Capacities are correspondingly larger for softer materials. Net weight complete in pounds: 6, 8 and 11.

These small hand machines have been designed to meet the requirements of the trade where adaptable service is necessary. Workmanship, material and design is the result of twenty-two years of manufacturing experience in Electrical Tools, and they are HISEY-BUILT throughout, with Universal motor for operation on both Direct Current and Alternating Current of the same voltage.

These new HISEY All Ball-Bearing Hand Drills are time savers and money makers for employer and employes, as the handy and practical design appeals to the workmen—increased production is the result.

*Our 16-page Catalog HML, describing these new machines, mailed on request. It will interest you.*

We manufacture Electric Screw Drivers and a complete line of Ball-Bearing Grinding Machines

*Agencies in all important cities.*

**The Hisey-Wolf Machine Co.**  
CINCINNATI, OHIO

# Classified Finding Index

## Chucks, Lathes

Cushman Chuck Co., Hartford, Conn.  
Hogson & Pettis Mfg. Co., New Haven, Conn.  
Thomas Elevator Co., 31 S. Hoyne Ave., Chicago

## Chucks, Magnetic

Heald Machine Co., Worcester, Mass.

## Chucks, Wrenchless

Thomas Elevator Co., 31 S. Hoyne Ave., Chicago

## Clutches, Friction

Conway & Co., Cincinnati  
Edgemont Machine Co., Dayton, Ohio  
Milwaukee Shaper Co., Milwaukee, Wis.  
National Clutch Co., 1859 Fulton St., Chicago

## Cold Saws

Burke Machine Tool Co., Conneaut, Ohio  
Cochrane-Rly Co., Rochester, N. Y.  
Greenfield Tap & Die Corp., Greenfield, Mass.  
Peter Bros. Mfg. Co., Algonquin, Ill.

## Contract Work Wanted

Bonney Vise & Tool Works, Allentown, Pa.  
Geuder, Paeschke & Frey Co., Milwaukee, Wis.  
New Britain Machine Co., New Britain, Conn.  
Robbins, Gamwell & Co., Pittsfield, Mass.  
Stebber Machine Co., Utica, N. Y.

## Couplings, Friction Clutch

Conway & Co., Cincinnati

## Cranes, Hand Power

Euclid Crane & Hoist Co., Euclid, Ohio  
Fawling & Harnischfeger Co., Milwaukee, Wis.  
Weaver Mfg. Co., Springfield, Ill.

## Cranes, Portable

Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Canton Foundry & Mch. Co., Canton, Ohio  
Weaver Mfg. Co., Springfield, Ill.

## Cranes, Traveling

Euclid Crane & Hoist Co., Euclid, Ohio  
Fawling & Harnischfeger Co., Milwaukee, Wis.

## Crank Pin Turning Machine

Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

## Cranks, Ball

Cincinnati Ball Crank Co., Cincinnati

## Cutters, Adjustable

Becker Milling Machine Co., Boston, Mass.  
McCrosky Tool Corporation, Meadville, Pa.  
Madison Mfg. Co., Muskegon, Mich.

## Cutters, Bolt

Lewthwaite Co., Geo. A., 116 Walker St., N. Y.

## Cutters, Keyseating

Scully-Jones & Co., Ry. Exch. Bldg., Chicago  
Whitney Mfg. Co., Hartford, Conn.

## Cutters, Milling

American Mch. Products Co., Detroit, Mich.  
Becker Milling Machine Co., Boston, Mass.  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Clough, R. M., Meriden, Conn.  
Genesee Mfg. Co., Rochester, N. Y.  
Michigan Tool Co., Detroit, Mich.  
Whitney Mfg. Co., Hartford, Conn.

## Cutting-Off Machines

Davis Machine Tool Co., Rochester, N. Y.  
Etna Mfg. Co., Toledo, Ohio  
Peter Bros. Mfg. Co., Algonquin, Ill.  
Wood Turret Machine Co., Brazil, Ind.

## Cylinder Boring Machines, Portable

Pedrick Tool & Machine Co., Philadelphia  
Stow Flexible Shaft Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

## Cylinder or Dome Facing Machines

Underwood Corp., H. B., Philadelphia

## Die Heads, Self-Opening

Modern Tool Co., Erie, Pa.  
Murchey Machine & Tool Co., Detroit, Mich.  
National Acme Company, Cleveland

## Dicing Machines

Henry & Wright Mfg. Co., Hartford, Conn.

## Dies, Pipe Threading

Signal & Keeler Mch. Wks., Edwardsville, Ill.  
Greenfield Tap & Die Corp., Greenfield, Mass.

## Dies, Screw and Thread Cutting

Greenfield Tap & Die Corp., Greenfield, Mass.  
Hardinge Brothers, 1770 Bertens Ave., Chicago  
National Acme Co., Cleveland

## Dies, Self-Opening Adjustable

Greenfield Tap & Die Corp., Greenfield, Mass.  
Modern Tool Co., Erie, Pa.  
Murchey Mch. & Tool Co., Detroit, Mich.  
Rickert-Shafer Co., Erie, Pa.  
Victor Tool Co., Inc., Waynesboro, Pa.

## Dogs, Machine

Ready Tool Co., Bridgeport, Conn.

## Drilling Machine Heads

Harley Eng. Co., H. E., Bridgeport, Conn.  
Nelson Black Mfg. Co., Detroit, Mich.  
Newman Mfg. Co., Cincinnati  
Rockford Drilling Machine Co., Rockford, Ill.  
Sellew Machine Tool Co., Pawtucket, R. I.  
Spafford Tool Works, Hartford, Conn.  
United States Machine Tool Co., Cincinnati

## Drilling Machines, Bench

Burke Machine Tool Co., Conneaut, Ohio  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Cincinnati Pulley Machinery Co., Cincinnati  
Demco Machine Tool Co., Cleveland  
High Speed Hammer Co., Rochester, N. Y.  
Reed Co., Francis, Worcester, Mass.  
Rockford Drilling Mch. Co., Rockford, Ill.  
Taylor & Fenn Co., Hartford, Conn.

## Drilling Machines, Hand

United States Machine Tool Co., Cincinnati

## Drilling Machines, Horizontal

Fawling & Harnischfeger Co., Milwaukee, Wis.  
Rockford Drilling Mch. Co., Rockford, Ill.

## Drilling Machines, Multiple Spindle

Cincinnati Pulley Machinery Co., Cincinnati  
Demco Machine Tool Co., Cleveland, Ohio  
Edlund Machinery Co., Inc., Cortland, N. Y.  
Henry & Wright Mfg. Co., Hartford, Conn.  
National Acme Co., Cleveland  
Reed Co., Francis, Worcester, Mass.  
Rockford Drilling Mch. Co., Rockford, Ill.  
Sipp Machine Co., Paterson, N. J.  
Taylor & Fenn Co., Hartford, Conn.

## Drilling Machines, Portable Electric

Hisey-Wolf Machine Co., Cincinnati  
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago  
Stow Flexible Shaft Co., Philadelphia  
Van Dorn Electric Tool Co., Cleveland  
Wisconsin Electric Co., Racine, Wis.

## Drilling Machines, Post

Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Hammond Mfg. Co., Cleveland, Ohio  
Henry & Wright Mfg. Co., Hartford, Conn.  
Mueller Machine Tool Co., Cincinnati  
Silver Mfg. Co., Salem, Ohio

## Drilling Machines, Radial

Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Hammond Mfg. Co., Cleveland  
Hawes, C. L., Ashtabula, Ohio  
Henry & Wright Mfg. Co., Hartford, Conn.  
Mueller Machine Tool Co., Cincinnati  
Fawling & Harnischfeger Co., Milwaukee, Wis.  
Silver Mfg. Co., Salem, Ohio  
Taylor & Fenn Co., Hartford, Conn.  
Sipp Machine Co., Paterson, N. J.  
Wickes Bros., Saginaw, Mich.

## Drilling Machines, Sensitive

Burke Machine Tool Co., Conneaut, Ohio  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Cincinnati Pulley Machinery Co., Cincinnati  
Demco Machine Tool Co., Cleveland  
Edlund Machinery Co., Inc., Cortland, N. Y.

## Classified Finding Index

### Drilling Machines, Sensitive—Cont'd.

Fenn Mfg. Co., Hartford, Conn.  
Hardinge Brothers, 1770 Bertreau Av., Chicago  
Henry & Wright Mfg. Co., Hartford, Conn.  
Reed Co., Francis, Worcester, Mass.  
Sipp Machine Co., Paterson, N. J.  
Taylor & Fenn Co., Hartford, Conn.  
United States Machine Tool Co., Cincinnati  
Wisconsin Electric Co., Racine, Wis.

**Drilling, Milling and Boring Machines, Vertical**  
Aurora Tool Works, Aurora, Ind.  
Knight Machinery Co., W. B., St. Louis, Mo.

### Drilling Machines, Vertical

Aurora Tool Works, Aurora, Ind.  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Cincinnati Pulley Machinery Co., Cincinnati  
Davis Machine Tool Co., Rochester, N. Y.  
Henry & Wright Mfg. Co., Hartford, Conn.  
Hinckley Machine Works, Hinckley, Ill.  
Hosier Drilling Machine Co., Goshen, Ind.  
Minster Machine Co., Minster, Ohio  
Rockford Drilling Machine Co., Rockford, Ill.  
Silver Mfg. Co., Salem, Ohio  
Sipp Machine Co., Paterson, N. J.  
Taylor & Fenn Co., Hartford, Conn.

### Drilling and Tapping Attachments

Aurora Tool Works, Aurora, Ind.  
Demco Machine Tool Co., Cleveland  
Harris Eng. Co., H. E., Bridgeport, Conn.  
Henry & Wright Mfg. Co., Hartford, Conn.  
McCroskey Tool Corporation, Meadville, Pa.  
Modern Tool Co., Erie, Pa.  
Newman Mfg. Co., Cincinnati  
Reed Co., Francis, Worcester, Mass.  
Schipper Machine & Tool Co., Aurora, Ind.  
Sipp Machine Co., Paterson, N. J.  
Turner Machine Co., Danbury, Conn.

### Drills, Pneumatic

Independent Pneumatic Tool Co., 655 W.  
Jackson Blvd., Chicago

### Drills, Twist

American Mch. Products Co., Detroit, Mich.

### Dust Handling Equipment

Knickerbocker Co., Jackson, Mich.

### Emery Stands

Blount Co., J. G., Everett, Mass.  
Buchanan Co., Thos., Cincinnati  
Marschke Mfg. Co., Indianapolis, Ind.  
Partridge, E. O., 2047 W. Lake St., Chicago

### Emery Wheel Dressers and Cutters

Buchanan Co., Thos., Cincinnati  
Cleveland Flue Cleaner Mfg. Co., Cleveland  
Taylor & Fenn Co., Hartford, Conn.

### Facing Heads, Automatic

Mummert-Dixon Co., Hanover, Pa.

### Feeders, Oil and Soda Water

New Britain Machine Co., New Britain, Conn.

### Filing Machines

Cochrane-Bly Co., Rochester, N. Y.

### Flexible Shafts

Stow Flexible Shaft Co., Philadelphia, Pa.

### Forges

Canedy-Otto Mfg. Co., Chicago Heights, Ill.

### Furnaces

Bennett Co., W. R., Elmwood, Conn.

### Furniture, Machine Shop

New Britain Machine Co., New Britain, Conn.

### Gauges, Amplifying, Snap and Plug

American Gauge Co., Dayton, Ohio  
North Side Tool Co., Dayton, Ohio

### Gauges, Taper

Hartford Special Mch. Co., Hartford, Conn.  
Way Co., A. F., Hartford, Conn.

### Gauging Machines

Davis Tool Co., Cleveland, Ohio  
North Side Tool Co., Dayton, Ohio

### Gear Cutting Machines

Brown & Sharpe Mfg. Co., Providence, R. I.

### Grinding Machines, Bench

Blount Co., J. G., Everett, Mass.  
Partridge, E. O., 2047 W. Lake St., Chicago  
Webster & Perks Tool Co., Springfield, Ohio

### Grinding Machines, Cutter, Reamer and Tool

Blount Co., J. G., Everett, Mass.  
Clough, R. M., Meriden, Conn.  
Grand Rapids Grinding Machine Co., Grand  
Rapids, Mich.

Greenfield Machine Co., Greenfield, Mass.  
Greenfield Tap & Die Corp., Greenfield, Mass.  
Harris Eng. Co., H. E., Bridgeport, Conn.  
McDonough Mfg. Co., Eau Claire, Wis.  
Manhattan Machine & Tool Works, Grand  
Rapids, Mich.

Marschke Mfg. Co., Indianapolis, Ind.  
Modern Tool Co., Erie, Pa.  
Mummert-Dixon Co., Hanover, Pa.  
National Acme Co., Cleveland  
Simmons Machine Co., Albany, N. Y.  
Thompson Grinder Co., Springfield, Ohio  
Wilmarth & Morman Co., Grand Rapids, Mich.

### Grinding Machines, Cylinder

Heald Machine Co., Worcester, Mass.  
Whitney & Son, Baxter D., Winchendon, Mass.

### Grinding Machines, Cylindrical

Brown & Sharpe Mfg. Co., Providence, R. I.  
Greenfield Machine Co., Greenfield, Mass.  
McDonough Mfg. Co., Eau Claire, Wis.  
Manhattan Machine & Tool Works, Grand  
Rapids, Mich.

Modern Tool Co., Erie, Pa.  
Ott Grinder Co., Indianapolis, Ind.  
Schmidt Co., R. L., Davenport, Iowa  
Simmons Machine Co., Albany, N. Y.  
Thompson Grinder Co., Springfield, Ohio  
Webster & Perks Tool Co., Springfield, Ohio

### Grinding Machines, Die

Abrasive Mch. Tool Co., E. Providence, R. I.  
Manhattan Machine & Tool Works, Grand  
Rapids, Mich.

Modern Tool Co., Erie, Pa.  
Reed Bros. Co., Inc., Beverly, Mass.  
Thompson Grinder Co., Springfield, Ohio  
Wilmarth & Morman Co., Grand Rapids, Mich.

### Grinding Machines, Disc

Radger Tool Co., Beloit, Wis.  
Sellew Machine Tool Co., Pawtucket, R. I.

### Grinding Machines, Drill

Grand Rapids Grinding Machine Co., Grand  
Rapids, Mich.  
La Salle Tool Co., La Salle, Ill.  
Wilmarth & Morman Co., Grand Rapids, Mich.

### Grinding Machines, Face

Marschke Mfg. Co., Indianapolis, Ind.  
Taylor & Fenn Co., Hartford, Conn.  
Thompson Grinder Co., Springfield, Ohio

### Grinding Machines, Gage

Abrasive Mch. Tool Co., E. Providence, R. I.

### Grinding Machines, Internal

Dalton Mfg. Corp., 1911 Park Av., New York  
Heald Machine Co., Worcester, Mass.  
Modern Tool Co., Erie, Pa.  
Ott Grinder Co., Indianapolis, Ind.  
Taylor & Fenn Co., Hartford, Conn.  
Thompson Grinder Co., Springfield, Ohio  
Whitney & Son, Baxter D., Winchendon, Mass.  
Wilmarth & Morman Co., Grand Rapids, Mich.

### Grinding Machines, Oilstone

Mummert-Dixon Co., Hanover, Pa.

# Classified Finding Index

## Grinding Machines, Portable

Hisey-Wolf Machine Co., Cincinnati  
Independent Pneumatic Tool Co., 600 W.  
Jackson Blvd., Chicago  
Maruschke Mfg. Co., Indianapolis, Ind.  
Mumbert-Dixon Co., Hanover, Pa.  
Stow Flexible Shaft Co., Philadelphia  
Strand & Co., N. A., 635 W. Jackson Blvd.,  
Chicago  
Van Dorn Electric Tool Co., Cleveland  
Wisconsin Electric Co., Racine, Wis.

## Grinding Machines, Snagging

Grand Rapids Grinding Machine Co., Grand  
Rapids, Mich.  
Manhattan Machine & Tool Works, Grand  
Rapids, Mich.  
Maruschke Mfg. Co., Indianapolis, Ind.

## Grinding Machines, Surface

Abrasive Mche. Tool Co., E. Providence, R. I.  
Bristol Machine Tool Co., Bristol, Conn.  
Head Machine Co., Worcester, Mass.  
La Salle Tool Co., La Salle, Ill.  
Reid Brothers Co., Inc., Beverly, Mass.  
Thompson Grinder Co., Springfield, Ohio  
Wilmarth & Morman Co., Grand Rapids, Mich.

## Grinding Machines, Universal

Brown & Sharpe Mfg. Co., Providence, R. I.  
Grand Rapids Grinding Machine Co., Grand  
Rapids, Mich.  
Greenfield Machine Co., Greenfield, Mass.  
Greenfield Tap & Die Corp., Greenfield, Mass.  
McDonough Mfg. Co., Eau Claire, Wis.  
Moders Tool Co., Erie, Pa.  
Ott Grinder Co., Indianapolis, Ind.  
Simmons Machine Co., Albany, N. Y.  
Thompson Grinder Co., Springfield, Ohio  
Webster & Perks Tool Co., Springfield, Ohio  
Wilmarth & Morman Co., Grand Rapids, Mich.

## Hack Saw Machines

Armstrong-Blum Mfg. Co., 341 N. Francisco  
Av., Chicago  
Peerless Machine Co., Racine, Wis.

## Hammers, Belt and Motor Driven

Barr H. Edall, Erie, Pa.  
High Speed Hammer Co., Rochester, N. Y.  
Quickwork Co., St. Marys, Ohio

## Hammers, Riveting

High Speed Hammer Co., Rochester, N. Y.

## Handles, Machine

Cincinnati Ball Crank Co., Cincinnati

## Heads, Dividing

Dickow, Fred C., 1868 W. Lake St., Chicago  
Simmons Machine Co., Albany, N. Y.  
Steptoe Co., John, Cincinnati  
Willard Press & Tool Co., Cincinnati

## Hobbs

Michigan Tool Co., Detroit, Mich.

## Hoists, Air

Independent Pneumatic Tool Co., 600 W.  
Jackson Blvd., Chicago

## Hoists, Electric

Euclid Crane & Hoist Co., Euclid, Ohio  
Thomas Elevator Co., 31 S. Hoyne Ave.,  
Chicago  
Weaver Mfg. Co., Springfield, Ill.

## Hoists, Electric Traveling

Euclid Crane & Hoist Co., Euclid, Ohio  
Fawling & Harnischfeger Co., Milwaukee, Wis.

## Hoists, Portable

Canton Foundry & Machine Co., Canton, Ohio

## Iron and Steel

Ryerson & Son, Jos. T., Chicago

## Jigs, Fixtures, Tools, Etc.

American Mche. Products Co., Detroit, Mich.  
Craftsman Tool Co., Conneaut, Ohio  
Hartford Special Mch. Co., Hartford, Conn.  
Hinkley Machine Works, Hinkley, Ill.  
Lee Co., Frank H., Danbury, Conn.

Nestor Mfg. Co., 40 W. 12th St., New York  
North Side Tool Co., Dayton, Ohio  
Spafford Tool Works, Hartford, Conn.  
Way Co., A. F., Hartford, Conn.  
Whiting & Comstock, Hartford, Conn.

## Joints, Universal

Alnsie Mche. & Tool Works, Hartford, Conn.

## Keyseating Machines

Chattanooga Mch. Co., Chattanooga, Tenn.  
Davis Machine Tool Co., Rochester, N. Y.  
Lapointe Co., J. N., New London, Conn.  
National Machine Tool Co., Cincinnati  
Whitney Mfg. Co., Hartford, Conn.

## Knurl Holder

Austin Tool & Machine Co., Inc., Pittsburgh

## Lathe Accessories and Attachments

Dalton Mfg. Corp., 1911 Park Av., New York  
Greaves-Klusman Tool Co., Cincinnati  
McCrosky Tool Corporation, Meadville, Pa.  
Modern Tool Co., Erie, Pa.  
Sidney Tool Co., Sidney, Ohio  
Simmons Machine Co., Albany, N. Y.  
South Bend Lathe Works, South Bend, Ind.

## Lathes, Bench

Blount Co., J. G., Everett, Mass.  
Dalton Mfg. Corp., 1911 Park Av., New York  
Greenfield Tap & Die Corp., Greenfield, Mass.  
Hardinge Brothers, 1770 Bertou Av., Chicago  
South Bend Lathe Works, South Bend, Ind.

## Lathes, Engine

Boye & Emmes Machine Tool Co., Cincinnati  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Carroll-Jamieson Mch. Tool Co., Batavia, Ohio  
Chard Lathe Co., Newcastle, Ind.  
Dalton Mfg. Corp., 1911 Park Av., New York  
Davis Machine Tool Co., Rochester, N. Y.  
Greaves-Klusman Tool Co., Cincinnati  
Lehmann Machine Co., St. Louis, Mo.  
Monarch Machine Tool Co., Sidney, Ohio  
Mueller Machine Tool Co., Cincinnati  
Ryerson & Son, Jos. T., Chicago  
Sidney Tool Co., Sidney, Ohio  
South Bend Lathe Works, South Bend, Ind.  
Willard Machine Tool Co., Cincinnati  
Worcester Lathe Co., Worcester, Mass.  
Wickes Bros., Saginaw, Mich.

## Lathes, Flat Turret

Acme Machine Tool Co., Cincinnati

## Lathes, Foot Power

Dalton Mfg. Corp., 1911 Park Av., New York

## Lathes, Horizontal Turret

Acme Machine Tool Co., Cincinnati  
Chard Lathe Co., Newcastle, Ind.  
Davis Machine Tool Co., Rochester, N. Y.  
Baur & Kamen Co., 328 N. Albany Av.,  
Chicago  
Steinle Turret Machine Co., Madison, Wis.  
Wood Turret Machine Co., Brazil, Ind.

## Lathes, Short Cut

Adams Mfg. Co., O. R., Rochester, N. Y.  
Sidney Tool Co., Sidney, Ohio

## Lathes, Speed and Hand

Blount Co., J. G., Everett, Mass.  
Greenfield Tap & Die Corp., Greenfield, Mass.

## Lathes, Tilted Turret

Wood Turret Machine Co., Brazil, Ind.

## Lockers, Shelving and Cupboards, Steel

Terrell's Equipment Co., Grand Rapids, Mich.

## Mandrels, Expanding

Alert Tool Co., Philadelphia  
Nicholson & Co., W. H., Wilkes-Barre, Pa.

## Mandrels, Solid

American Mche. Products Co., Detroit, Mich.  
Nicholson & Co., W. H., Wilkes-Barre, Pa.



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**Metal Cutting Machines, Sheet**  
Savage Co., W. J., Knoxville, Tenn.  
Way Co., A. F., Hartford, Conn.

**Milling Attachments**  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Burke Machine Tool Co., Connaut, Ohio  
Hinckley Machine Works, Hinckley, Ill.  
Knight Machinery Co., W. B., St. Louis, Mo.  
Stephens Co., John, Cincinnati  
Whiting & Constock, Hartford, Conn.  
Willard Press & Tool Co., Cincinnati

**Milling Machines, Automatic**  
Becker Milling Machine Co., Boston, Mass.

**Milling Machines, Bench**  
Burke Machine Tool Co., Connaut, Ohio  
Carter & Hakes Mch. Co., W. Winsted, Conn.  
Harding Brothers, 1710 Berteau Av., Chicago  
Simmons Machine Co., Albany, N. Y.

**Milling Machines, Hand**  
Bristol Machine Tool Co., Bristol, Conn.  
Burke Machine Tool Co., Connaut, Ohio  
Carter & Hakes Mch. Co., W. Winsted, Conn.  
Davenport Mfg. Co., Meadville, Pa.  
Stephens Co., John, Cincinnati  
Whitney Mfg. Co., Hartford, Conn.

**Milling Machines, Horizontal**  
Beaman & Smith Co., Providence, R. I.  
Becker Milling Machine Co., Boston, Mass.  
Gooley & Edmund, Cortland, N. Y.  
Stephens Co., John, Cincinnati

**Milling Machines, Plain**  
American Milling Machine Co., Cincinnati  
Beaman & Smith Co., Providence, R. I.  
Becker Milling Machine Co., Boston, Mass.  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Burke Machine Tool Co., Connaut, Ohio  
Cochrane-Bly Co., Rochester, N. Y.  
Davenport Mfg. Co., Meadville, Pa.  
Gooley & Edmund, Cortland, N. Y.  
Stephens Co., John, Cincinnati

**Milling Machines, Portable**  
Fedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

**Milling Machines, Universal**  
American Milling Machine Co., Cincinnati  
Becker Milling Machine Co., Boston, Mass.  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Cochrane-Bly Co., Rochester, N. Y.  
Stephens Co., John, Cincinnati

**Milling Machines, Vertical**  
Beaman & Smith Co., Providence, R. I.  
Becker Milling Machine Co., Boston, Mass.  
Bristol Machine Tool Co., Bristol, Conn.  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Burke Machine Tool Co., Connaut, Ohio  
Cough, R. M., Meriden, Conn.  
Cochrane-Bly Co., Rochester, N. Y.  
Knight Machinery Co., W. B., St. Louis, Mo.  
Taylor & Fenn Co., Hartford, Conn.

**Mills, Adjustable Hollow**  
Genesee Mfg. Co., Rochester, N. Y.

**Motors, Electric**  
Reliance Electric & Eng. Co., Cleveland  
Wisconsin Electric Co., Racine, Wis.

**Nut Facing Machines**  
Victor Tool Co., Inc., Waynesboro, Pa.

**Oil Cups**  
Gita Bros. Mfg. Co., 1940 S. Kilbourne Av., Chicago  
Tucker, W. C. & F. C., Hartford, Conn.

**Oil Hole Covers**  
Tucker, W. C. & F. C., Hartford, Conn.

**Oils, Quenching**  
Bell & Gossett Co., 613 W. 30th St., Chicago

**Parallels, Adjustable**  
Berith Mfg. Co., O. B., Hartford, Conn.

**Pattern Shop Machinery**  
Chicago Mch. Exchange, 1219 Washington Blvd., Chicago  
Cochrane-Bly Co., Rochester, N. Y.  
Silver Mfg. Co., Salem, Ohio  
Towsley Mfg. Co., John T., Cincinnati

**Pipe Bending Machines**  
Fedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

**Pipe Cutting and Threading Machines**  
Bignall & Keeler Mch. Wks., Edwardsville, Ill.  
Simmons Machine Co., Albany, N. Y.

**Planer Attachment, Radius**  
Underwood Corp., H. B., Philadelphia

**Planer Tools, Circular**  
Underwood Corp., H. B., Philadelphia

**Planers, Valve Seat, Portable**  
Fedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

**Planing Machines, Metal**  
Cincinnati Planer Co., Cincinnati  
Lee Co., Frank H., Danbury, Conn.

**Pneumatic Tools**  
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago

**Polishing and Buffing Machines**  
Blount Co., J. G., Everett, Mass.  
Canedy Otto Mfg. Co., Chicago Heights, Ill.  
New Britain Machine Co., New Britain, Conn.  
Partridge, E. O., 2047 W. Lake St., Chicago  
Stow Flexible Shaft Co., Philadelphia  
Webster & Perks Tool Co., Springfield, Ohio  
Wilmarth & Morman Co., Grand Rapids, Wis.  
Wisconsin Electric Co., Racine, Wis. (Mich.)

**Presses, Arbor**  
Atlas Press Co., Kalamazoo, Mich.  
Bartlett, Edwin E., Nausha, N. H.  
Canedy Otto Mfg. Co., Chicago Heights, Ill.  
Laurie Mfg. Co., Springfield, Ill.  
Nicholson & Co., W. H., Wilkes-Barre, Pa.  
Weaver Mfg. Co., Springfield, Ill.

**Presses, Broaching**  
Atlas Press Co., Kalamazoo, Mich.  
Bartlett, Edwin E., Nausha, N. H.  
Laurie Mfg. Co., Springfield, Ill.

**Presses, Foot**  
Atlas Press Co., Kalamazoo, Mich.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
Laurie Mfg. Co., Springfield, Ill.  
Rockford Iron Works, Rockford, Ill.  
Taylor & Fenn Co., Hartford, Conn.  
Partridge, E. O., 2047 W. Lake St., Chicago

**Presses, Power**  
Loshbough-Jordan T. & M. Co., Elkhart, Ind.  
Rockford Iron Works, Rockford, Ill.  
Willard Press & Tool Co., Cincinnati

**Presses, Punch**  
Enterprise Machinery Co., 32 S. Clinton St., Chicago  
Henry & Wright Mfg. Co., Hartford, Conn.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
Loshbough-Jordan T. & M. Co., Elkhart, Ind.  
Laurie Mfg. Co., Springfield, Ill.  
Partridge, E. O., 2047 W. Lake St., Chicago  
Rockford Iron Works, Rockford, Ill.

**Presses, Screw**  
Atlas Press Co., Kalamazoo, Mich.  
Laurie Mfg. Co., Springfield, Ill.  
Manhattan Machine & Tool Works, Grand Rapids, Mich.  
Towsley Mfg. Co., John T., Cincinnati  
Weaver Mfg. Co., Springfield, Ill.

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### Pulley Machinery

Cincinnati Pulley Mch. Co., Cincinnati

### Pulleys, Iron, Solid and Split

Conway & Co., Cincinnati  
National Clutch Co., 1859 Fulton St., Chicago  
Fryer Fdry. Co., 328 N. Sangamon St. Chicago

### Pumps, Fire

Lea-Courtenay Company, Newark, N. J.

### Punch Press Feeds

Rockford Iron Works, Rockford, Ill.

### Punches, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco  
Ave., Chicago  
Hendley & Whittemore Co., Beloit, Wis.

### Punches, Power

Clough, R. M., Meriden, Conn.  
Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
Ryerson & Son, Jos. T., Chicago  
Wickes Bros., Saginaw, Mich.

### Punches and Dies

Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
Lewthwaite Mch. Co., T. H., 415 E. 31st St.,  
North Side Tool Co., Dayton, Ohio  
Rockford Iron Works, Rockford, Ill.

### Racks, Bar Stock

Yohs Supply Co., Wm. S., Canton, Ohio

### Reamer Holder, Floating

Victor Tool Co., Inc., Waynesboro, Pa.

### Reamers, Solid

American Mch. Products Co., Detroit, Mich.  
Clough, R. M., Meriden, Conn.  
McCroskey Tool Corporation, Meadville, Pa.  
Ready Tool Co., Bridgeport, Conn.

### Reamers, Adjustable

Cashman Tool Co., Waynesboro, Pa.  
Clough, R. M., Meriden, Conn.  
Greenfield Pat. & Die Corp., Greenfield, Mass.  
McCroskey Tool Corporation, Meadville, Pa.

### Reamers, Cylinder

Hinckley Machine Works, Hinckley, Ill.  
McCroskey Tool Corporation, Meadville, Pa.

### Reels, Extension

Cincinnati Specialty Mfg. Co., Cincinnati

### Riveting Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.  
High Speed Hammer Co., Rochester, N. Y.  
Independent Pneumatic Tool Co., 899 W.  
Jackson Blvd., Chicago

### Roll Cutters

Armstrong-Blum Mfg. Co., 341 N. Francisco  
Ave., Chicago  
Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
Tucker, W. C. & F. C., Hartford, Conn.

### Roller Bearings

William Co., 253 W. 58th St., New York

### Scraping Machines, Pneumatic

Anderson Brothers Mfg. Co., Rockford, Ill.

### Screw Driving Machines, Automatic

Reynolds Machine Co., Massillon, Ohio

### Screw Machines, Automatic

Brown & Sharpe Mfg. Co., Providence, R. I.  
Cincinnati Automatic Mch. Co., Cincinnati  
National Acme Company, Cleveland  
New Britain Mch. Co., New Britain, Conn.

### Screw Machines, Plain or Hand

Acme Machine Tool Co., Cincinnati  
Smurf & Kamen Co., 328 N. Albany Av.,  
Chicago  
Wood Turret Machine Co., Brazil, Ind.

### Screws, Cap and Set

National Acme Company, Cleveland

### Second-Hand Machinery Dealers

Attna Machinery Corp'n, Newark, N. J.  
Allen Mch. Co., B. G., 104 S. Clinton St.,  
Chicago

Badger-Packard Mch. Co., Milwaukee, Wis.  
Bath & Co., Cyril J., Cleveland, Ohio  
Beal & Co., Joseph, Boston, Mass.  
Bennett Machinery Co., G. L., 30 Church  
St., New York

Biggs-Watterson Co., Cleveland  
Broadway Machinery Co., Cincinnati  
Brown-McDonald Mch. Co., St. Louis, Mo.

Brownell Machinery Co., Providence, R. I.  
Cleveland Belting & Mch. Co., Cleveland  
Dale-Brewster Machy. Co., 541 Washington  
Bldg., Chicago

Dickow, Fred C., 1858 W. Lake St., Chicago  
Essley Machinery Co., E. L., 655 Washington  
Bldg., Chicago

Federal Mch. Sales Co., 13 N. Jefferson St.,  
Chicago

Fitzgerald & Co., W. H. J., Boston, Mass.  
Girard Machine & Tool Co., Philadelphia

Graves Mch. Bx., 50 Church St., New York  
Harris Bros. Co., W. 35th & Iron, Chicago  
Hill, Clarke & Co., 625 Wash'tn Bldg., Chicago

Johnston Co., Wm. T., Cincinnati  
Johnson & Sons Machinery Co., Wm. C.,  
Kinsey Co., E. A., Cincinnati  
LeBlond Machine Tool Co., R., Cincinnati

Lucas & Son, J. L., Bridgeport, Conn.  
Lynd-Farguher Co., Boston, Mass.  
McCabe Lathe & Machinery Corp., J. J.,  
148 Broadway, New York

McCoy-Brandt Mch. Co., Pittsburgh, Pa.  
McMullen Mch. Co., Grand Rapids, Mich.  
Marshall & Hushart Machinery Co., 17 S.  
Jefferson St., Chicago

Mellor Machy. Co., Chas., 215 S. Clinton St.,  
Chicago

Motch & Merryweather Mch. Co., Cleveland  
New York Machinery Exchange, 50 Church  
St., New York

Niles-Bement-Pond Co., 111 Broadway, N. Y.  
Norton Bros. Machinery Co., Cincinnati  
O'Brien Machinery Co., Philadelphia

Osborne & Sexton Machy. Co., Columbus, O.  
Osgood, J. L., Buffalo, N. Y.  
Parker Co., Frank H., 911 First Nat'l Bank  
Bldg., Chicago

Pattison Supply Co., W. M., Cleveland  
Peninsular Machinery Co., Detroit, Mich.  
Prentiss & Co., Henry, Singer Bldg., N. Y.

Russell Machine Co., Pittsburgh, Pa.  
Simmons Machine Co., Albany, N. Y.  
Smith Machinery Co., H. A., Syracuse, N. Y.

Stocker-Humely-Wachs Co., 117 N. Jefferson  
St., Chicago

Strong, Carlisle & Hammond Co., Syracuse, N. Y.  
Thompson Co., C. M., 35 S. Clinton St., Chicago

Toomey, Inc., Frank, Philadelphia  
Vonnegut Machinery Co., Indianapolis, Ind.  
Walsh Machinery Co., M. J., Milwaukee, Wis.

Warner, H. D., Hartford, Conn.  
Wayne Machy. Co., Fort Wayne, Ind.  
Wickes Machinery Co., Jersey City, N. J.

Winterer, Herman L., Philadelphia  
White Machy. Co., A. D., 108 N. Jefferson  
St., Chicago

Wright, David A., 568 Washington Blvd.,  
Chicago

### Shafts, Flexible

Stow Flexible Shaft Co., Philadelphia

### Shaping Machines

Cochrane-Bly Co., Rochester, N. Y.  
Columbia Machine Tool Co., Hamilton, Ohio  
Davis Machine Tool Co., Rochester, N. Y.

Milwaukee Shaper Co., Milwaukee, Wis.  
Osborne & Sexton Machy. Co., Columbus, O.  
Rhodes Mfg. Co., Hartford, Conn.

Sellew Machine Tool Co., Pawtucket, R. I.  
Simmons Machine Co., Albany, N. Y.  
Smith & Mills Co., Cincinnati  
Steptoe Co., John, Cincinnati

Streine Tool & Mfg. Co., New Bremen, Ohio

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## Shears, Hand

Armstrong-Blum Mfg. Co. 341 N. Francisco  
Av., Chicago  
Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite Co., Geo. A., 116 Walker St., N.Y.  
Tucker, W. C. & F. C., Hartford, Conn.

## Shears, Power

Hendley & Whittemore Co., Beloit, Wis.

## Sine Bars

Way Co., A. F., Hartford, Conn.

## Slotting Machines

Clough, R. M., Meriden, Conn.  
Ethies Mfg. Co., Hartford, Conn.

## Sprockets

Cullman Wheel Co., 1344 Altgeld St., Chicago

## Stock Supports

Way Co., A. F., Hartford, Conn.

## Swaging Machines

Etna Mfg. Co., Toledo, Ohio

## Tables, Circular

Cochrane-Bly Co., Rochester, N. Y.  
Hinckley Machine Works, Hinckley, Ill.  
Lewthwaite Co., Geo. A., 116 Walker St., N.Y.

## Tap Extractors

Walton Co., Hartford, Conn.

## Tap Wrenches

Alert Tool Co., Philadelphia

## Tapping Machines and Attachments

Beaman & Smith Co., Providence, R. I.  
Burke Machine Tool Co., Conneaut, Ohio  
Cincinnati Pulley Machinery Co., Cincinnati  
Fenn Mfg. Co., Hartford, Conn.  
Greenfield Tap & Die Corp., Greenfield, Mass.  
Hammond Mfg. Co., Cleveland  
Jarvis Co., Charles L., Gildersleeve, Conn.  
McCroskey Tool Corporation, Meadville, Pa.  
Modern Tool Co., Erie, Pa.  
Rickett-Shafer Co., Erie, Pa.  
Turner Machine Co., Danbury, Conn.  
Webster & Perka Tool Co., Springfield, Ohio  
Whitney Mfg. Co., Hartford, Conn.  
Workwell Eng. & Mfg. Co., 616 W. Monroe  
St., Chicago

## Taps, Collapsing

Modern Tool Co., Erie, Pa.  
Murchey Machine & Tool Co., Detroit, Mich.  
Victor Tool Co., Inc., Waynesboro, Pa.

## Taps and Dies

Greenfield Tap & Die Corp., Greenfield, Mass.  
National Acme Company, Cleveland  
Victor Tool Co., Inc., Waynesboro, Pa.

## Thread Cutting Tool Jigs

G-L Sales Co., 621 W. 26th St., New York

## Threading Tools

Armstrong Bros. Tool Co., 308 N. Francisco  
Av., Chicago  
Greenfield Tap & Die Corp., Greenfield, Mass.  
Modern Tool Co., Erie, Pa.  
Murchey Machine & Tool Co., Detroit, Mich.  
National Acme Company, Cleveland  
Ready Tool Co., Bridgeport, Conn.

## Tool Holders

Armstrong Bros. Tool Co., 308 N. Francisco  
Av., Chicago  
Ready Tool Co., Bridgeport, Conn.  
Rigid Tool Holder Co., Washington, D. C.  
Wood Turret Machine Co., Brazil, Ind.

## Tools, Boring

Alert Tool Co., Philadelphia  
American Mch. Products Co., Detroit, Mich.  
Armstrong Bros. Tool Co., 308 N. Francisco  
Av., Chicago  
Rigid Tool Holder Co., Washington, D. C.

## Tools, Lathe and Planer

Armstrong Bros. Tool Co., 308 N. Francisco  
Av., Chicago  
Ready Tool Co., Bridgeport, Conn.

## Tools, Machinists'

Armstrong Bros. Tool Co., 308 N. Francisco  
Av., Chicago  
Brown & Sharpe Mfg. Co., Providence, R. I.

## Tools, Spot Facing

Genesee Mfg. Co., Rochester, N. Y.

## Tooth Rounding Machines

Cross Gear & Engine Co., Detroit, Mich.

## Trucks, Machine Shop

New Britain Machine Co., New Britain, Conn.  
Towsley Mfg. Co., John T., Cincinnati

## Turntables

Canton Foundry & Machine Co., Canton, O.

## Turret Heads, for Lathes

Newman Mfg. Co., Cincinnati

## Valve Seat Planing Machines, Portable

Stow Flexible Shaft Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

## Vises, Drilling Machine

Ainslie Mch. & Tool Works, Hartford, Conn.  
Armstrong Blum Mfg. Co., 341 N. Francisco  
Av., Chicago  
Armstrong Bros. Tool Co., 308 N. Francisco  
Av., Chicago  
Carter & Hakes Mch. Co., W. Winsted, Conn.  
Cincinnati Vise Co., Cincinnati  
Hogson & Pettis Mfg. Co., New Haven, Conn.  
Hollands Mfg. Co., Erie, Pa.  
Hoosier Drilling Machine Co., Goshen, Ind.  
Martin Tool & Die Co., Springfield, Ohio  
Nestor Mfg. Co., 40 W. 13th St., New York  
Thomas Elevator Co., 31 So. Horne Ave.,  
Yost Mfg. Co., Meadville, Pa. (Chicago)

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## Vises, Milling Machine

Carter & Hakes Mch. Co., W. Winsted, Conn.  
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Hardinge Brothers, 1770 Bertau Av., Chicago  
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Hollands Mfg. Co., Erie, Pa.  
Hoosier Drilling Machine Co., Goshen, Ind.  
Nestor Mfg. Co., 40 W. 13th St., New York  
Sellsaw Machine Tool Co., Pawtucket, R. I.  
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Steptoe Co., John, Cincinnati  
Yost Mfg. Co., Meadville, Pa.

## Vises, Shaper

Columbia Machine Tool Co., Hamilton, Ohio  
Hoosier Drilling Machine Co., Goshen, Ind.  
Steptoe Co., John, Cincinnati

## Washing Machines for Cleaning Metal Parts

Crescent Washing Machine Co., 843 Larrabee  
St., Chicago

## Wood Working Machinery

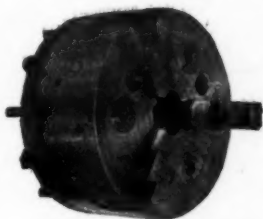
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Cincinnati Vise Co., Cincinnati  
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# The Lavoie Air Chuck

The Simplest and Best



Made in many sizes

Made in seven types

Six types of universal  
or combination jaws

Don't confuse the "Lavoie" with other air chucks. It is simpler and better and inexpensive to install. Already used in a number of the best plants of the country, in some of which they "didn't want air chucks" until they saw the "Lavoie."

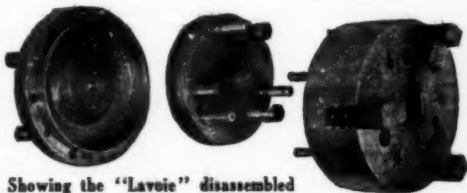
We avoid the heavy cylinder on rear end of spindle and combine the chuck, cylinder and piston in a single unit, simplifying its construction and application to the work. The clamping mechanism is of the lever and wedge type—absolutely no gears. A releasing spring eliminates the necessity for double piping and economizes air.

*You will be interested in the full description. Your address?*

**Frontier Chuck & Tool Co.**

36 Letchworth St.,

Buffalo, N. Y.



Showing the "Lavoie" disassembled

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**"Shop Furniture  
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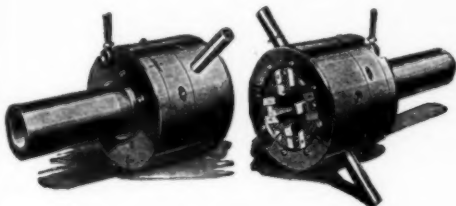
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